

COAL AGE

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This Year and the Next

BY FRANK H. KNEELAND



THE year 1919 was one of uncertainties, doubts, fears, forebodings, realizations and even actual despair. The war, so far as active hostilities were concerned, closed in November, 1918, and the beginning of the year following saw the letting down of the strenuous efforts that had been practiced during the period of the conflict. At the beginning of 1919 industry was attempting to make its transition from war to peace activities.

During 1918 large stocks of coal had been accumulated by many concerns, and these had to be consumed before new supplies were ordered. The net result was that the demand for coal at the mines languished during January, February and a large part of March. After this period of depression, business began to pick up, and from then on the loss of production from the cause of "no market" decreased to the vanishing point. Simultaneously with the decrease in no-market losses began an increase in the loss attributable to inadequate car supply. This cause of production loss was present in varying intensity until the close of the year.

This shortness in car supply was, in part, responsible for precipitating the general strike begun on Nov. 1 and which ended, in general, about the middle of December. This strike—if it was aimed at anything in particular—was a protest against the poor car supply and the irregular working time from other causes. While it was supposedly aimed at the operator it actually hit the public and caused no small amount of suffering, particularly in the West, where cold weather set in early and with extreme severity, considering the time of year.

The total coal production of 1919 is estimated at about 544,000,000 short tons, being a decrease of, roughly, 134 million tons, or approximately 20 per cent, as compared with the production of the preceding year. This decrease while in some respects discouraging is by no means disheartening, for in the past considerable recessions in output have repeatedly occurred, and yet the industry never required over two years to "come back" to and beat its former records.

Barring some unknown and highly uncertain considerations, the outlook for 1920 is auspicious. If the miners can be induced to stick to mining—even though, as now, it be at rates that make the incomes of many educators and professional men generally look like the proverbial thirty cents—and the railroads and other consumers will lay in their winter requirements during the spring and summer, and if the Government can be induced to relax its stranglehold upon industry in general, and coal production in particular, the year 1920 should by all omens be a prosperous one. Peace industry long neglected has begun to attain appreciable momentum. The ravages and waste of war have been by no means replenished. The whole world is in need of goods, and the way to prosperity is clear. Unfortunately there is no royal road to this goal, and the only means of its attainment lies in work.

Work, then, should be our motto, watchword and slogan throughout the ensuing year. Intelligent and conscientious effort is the means—and the only means—of obtaining that peace and plenty for which we all long. Work will be in 1920 the veritable password, the countersign, the shibboleth of prosperity.

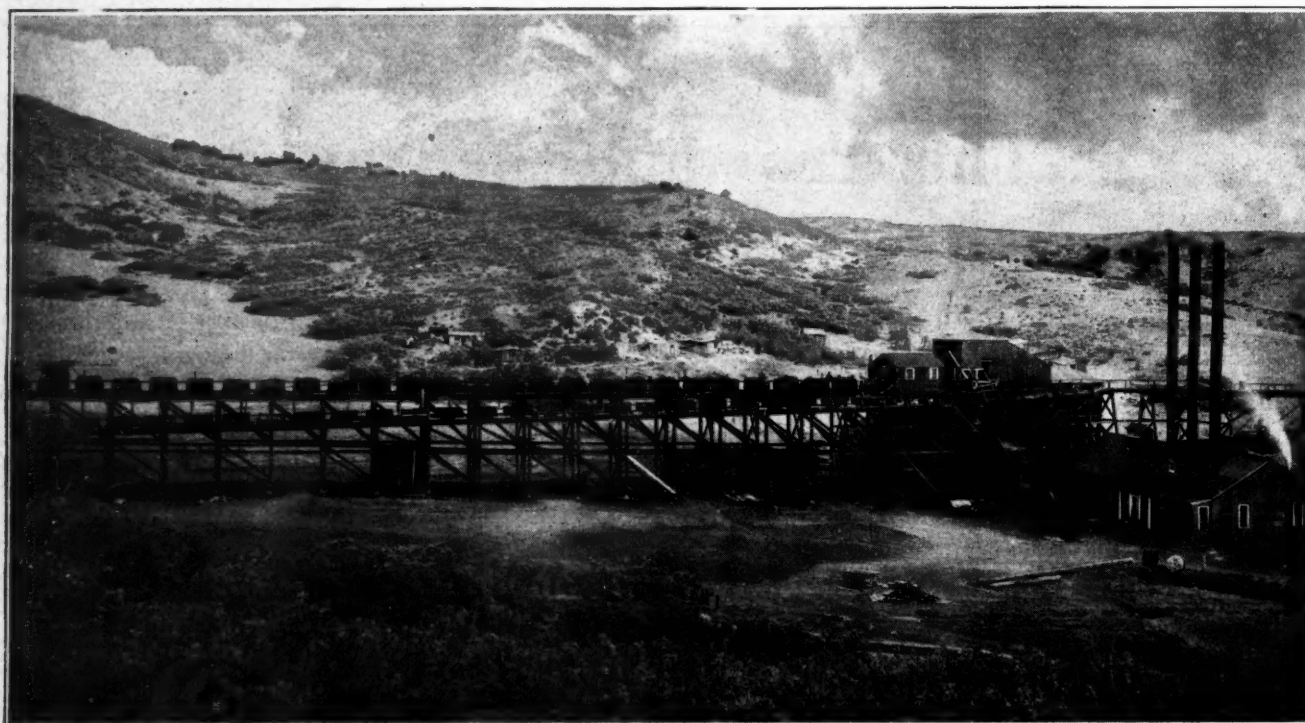
Coal Mine Fatalities in 1919

BY ALBERT H. FAY

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RETURNS received by the Bureau of Mines from the various state mine inspectors for the first eleven months of 1919 indicate a reduction of coal mine fatalities of approximately 12 per cent as compared with the same period of 1918. The largest reduction in

ber, 1918, and 230 for November, 1917. This large reduction in fatalities occurred in the bituminous coal mines where a general strike was declared effective Nov. 1 and continued until about the middle of December. With no large disasters for the month of Decem-



TIPPLE OF THE OAKDALE COAL CO., LA VETA, COL.

On Aug. 18, 1919, eighteen men were killed here as a result of a gas explosion.

the actual number of fatalities was in those resulting from falls of roof or face with 1,000 in 1919, as compared with 1,210 for the first eleven months of 1918. Underground haulage shows a reduction of 116 and surface haulage shows a reduction of 33.

PRINCIPAL COAL MINE DISASTERS

The following table gives a list of coal-mine disasters during 1919 in which five or more men were killed:

Date 1919	Name of Mine	Location of Mine	Nature of Accident	Killed
Mar. 31	Empire	Aguilar, Col.	Mine explosion	13
Apr. 29	Majestic	Majestic, Ala.	Mine explosion	22
June 5	Baltimore tunnel	Wilkes-Barre, Pa.	Powder explosion	92
June 30	Alderson No. 5	Alderson, Okla.	Mine explosion	15
July 8	Lansford colliery	Lansford, Pa.	Gas explosion	8
July 18	Carswell	Kimball, W. Va.	Gas explosion	6
Aug. 6	Weirwood	Weirwood, W. Va.	Gas explosion	7
Aug. 18	Oakdale	La Veta, Col.	Gas explosion	18
Oct. 29	Amsterdam No. 2	Amsterdam, Ohio	Mine fire	20
Total				201

The monthly production of coal in January was approximately 50,000,000 tons while the minimum of about 36,000,000 tons was reached in February. From this date, the monthly production increased gradually to a maximum of about 63,000,000 tons in October, while the fatality rate, with the exception of the month of June, did not increase in proportion to the production.

Both production and fatalities fell off materially in the month of November, when the fatalities for this month were only 88 as compared with 157 for Novem-

ber, the total reduction in fatalities for the years should be approximately 300. During the year 1919, there were 10 mine disasters in which five or more men were killed resulting in a total loss of 201 lives.

The accompanying tabulations are self-explanatory.

FATALITIES AT COAL MINES IN 1918 AND 1919*

	1918	1919	(Increase or Decrease) No.	Per Cent
Underground:				
Falls of roof or face	1,210	1,000	-210	-17
Haulage	470	354	-116	-24
Gas and dust explosions	124	173	+49	+39
Explosives	124	198	+74	+60
Electricity	86	64	-22	-25
Miscellaneous	116	128	+12	+10
Shaft:				
Miscellaneous	51	45	-6	-12
Surface:				
Haulage	111	78	-33	-30
Machinery	40	20	-20	-50
All others	83	61	-22	-26
Total	2,415	2,121	-294	-12

* Period covered is for eleven months only.

COAL MINE FATALITIES BY MONTHS, 1917-1919†

	1917	1918	†1919
January	227	215	186
February	168	222	157
March	230	196	172
April	309	215	189
May	181	211	175
June	232	230	293
July	247	276	220
August	269	249	226
September	181	230	181
October	197	214	234
November	230	157	88
December	225	164	...
Total	2,696	2,579	...

† Subject to slight revision.

Coal-Land Sales in 1918 and 1919

Location	Acreage	Cost Per Acre	Total	Bought by	Sold by	Remarks	Coal Age Reference
PENNSYLVANIA							
Schuylkill County—Southern Anthracite District: 1918							
Pottsville.....	202.0	{ \$700 coal \$1200 fee }		Lehigh Coal & Navigation Co.	Heirs of John Farnum		Oct. 17, '18, p. 759
Greene County Field 1918							
Franklin Township....	333.314	400.00	\$133,325.60	H. G. Rockwell, Chicago, Ill.	Judge James Ingram Mrs. Sarah Lindsey Mrs. H. D. Patton		Sept. 19, '18 p. 572
Franklin Township....	79.713	400.00	31,885.20	H. G. Rockwell, Chicago, Ill.	I. H. Knox		Sept. 19, '18 p. 572
	346.525	443.57	153,706.50	H. G. Rockwell, Chicago, Ill.	J. R. Nutt		Sept. 19, '18 p. 572
	12,000.0		4,000,000.00*	U. S. Steel Corp.		Tract on Monongahela River	Oct. 3, '18 p. 665
	2,566.0	569.00	1,460,098.03	J. E. Dorsey, N. Y. C.	J. V. Thompson Estate	Land in Cumberland Dunkard and Monongahela	Dec. 19, '18 p. 1140
	330.0	121.21	40,000.00	Thomas M. Inghram and Francis I. Baily	Farmers & Drivers National Bank		Dec. 26, '18 p. 1182
Morgan Township....	1,177.6	382.88	450,645.80	H. G. Rockwell, Chicago, Ill.	J. V. Thompson Estate	Whitley and Franklin Townships	Dec. 19, '18 p. 1140
		700.00		Enterprise Coal & Coke Co.			July 13, '18 p. 83
	5,000.0	400.00	2,000,000.00	C. G. Rockwell, Atty., Chicago, Ill.			Aug. 1, '18 p. 240
	12,000.0	583.33	7,000,000.00	H. C. Frick Coke Co.	7255 acres of tract from J. V. Thompson in Cumberland and Jefferson Townships		Aug. 8, '18 p. 291
		513.48	56,482.91	Cumberland Coal Co.			
Greene County—Pittsburgh District: 1919							
Waynesburg.....	2,225.0	600.00	1,335,000.00	Cumberland Coal Co.	For U. S. Steel Corporation		Jan. 23, '19 p. 209
	110.0	513.48	56,482.91		Daniel M. Anderson		Feb. 13, '19 p. 338
Waynesburg.....	1,500.0	168.00	252,000.00	J. W. Dunnagan	James R. Barnes		June 3, '19 p. 1064
Waynesburg.....	453.5	500.34	226,905.00		James M. Heustead		June 12, '19 p. 1102
	275.9	500.55	138,100.00	W. J. Kyle	Cumberland Coal Co.	(Sheriff's Sale)	June 12, '19 p. 1102
Waynesburg.....	177.3	500.88	88,805.00	W. C. Montgomery	Paul J. Bickle, Cleveland, Ohio	(Sheriff's Sale)	June 12, '19 p. 1102
	249.29	464.98*	115,915.15	Cumberland Coal Co.	{ Lew Keener and F. H. Keener }	186.97 ac. @ \$620 = \$115,915.15; interest	
Washington County—Pittsburgh District: 1918							
Washington.....	160.223	100.00	16,022.30	George H. Thiess	The Hemphills	Independence Township	July 20, '18 p. 148
Washington.....	131.55	100.00	13,155.00	J. A. Bell	J. O. Scott	Donegal Township	July 20, '18 p. 148
Washington.....	194.556	251.85	49,000.00	John Steel	Joseph W. Brown	Cross Creek Township	July 20, '18 p. 148
Washington.....	142.599	100.00	14,259.90	G. H. Thiess	The Hemphills	Hopewell Township	July 20, '18 p. 148
Tylerdale.....	92.591	300.00	27,777.30	Pittsburgh Coal Co.	Dr. George M. Kelly	Washington, Pa.	Aug. 1, '18 p. 239
Washington County—Pittsburgh District: 1919							
Washington.....	123.8	300.00	37,140.00	Pittsburgh Coal Co.	{ W. F. Ellwood, Susan E. Mounts, Agnes E. Brownlee }		June 5, '19 p. 1064
	552.0	350.00*	193,000.00	Vesta Coal Co.	Joseph Ulery Estate		Aug. 7, '19 p. 252
Fayette County—Pittsburgh District: 1918							
Uniontown.....	75.0	5,800.00		Stern Coal Co.	J. V. Thompson, Trustees		July 13, '18 p. 83
	150.0	803.40	60,255.00	Hecla Coal & Coke Co.	C. H. Seaton and L. S. Bowman	Other half of property involved in J. V. Thompson Estate)	Aug. 29, '18 p. 419
Connellsville District:							
La Belle.....	44.0*	682.00	30,000.00*	La Belle Coke Co.		Tract in Harmor Township	Oct. 3, '18 p. 664
Belle Vernon.....	100.0	520.00	52,000.00	W. H. Wilkey			Jan. 23, '19 p. 209
Spring Hill.....	311.0	128.62	40,000.00	Luke H. Frasher	Sheriff's Sale, appraised at \$25,000.		June 5, '19 p. 1064
Armstrong County—Pittsburgh District: 1918							
South Bend.....	1,200.0	33.33	40,000.00*	Dr. J. C. McGregor, H. B. Puterbaugh, Harry E. Clark			Aug. 1, '18 p. 239
Westmoreland County—Youghiogheny District: 1918							
	2,500.0	1300.00	3,250,000.00	Pittsburgh Coal Co.	Moore Interest	On the Youghiogheny River	Nov. 20, '18 p. 1007
1919							
Greensburg.....	2,200.0	1818.18	4,000,000.00	Pittsburgh Coal Co.	Mrs. Elizabeth Moore		Jan. 16, '19 p. 164
Greensburg.....	1,400.0	714.29	1,000,000.00	Pittsburgh Coal Co.	Mrs. Elizabeth Moore		Jan. 16, '19 p. 164
Irwin.....	167.0	1047.90	175,000.00	Whyel Coal Co.	{ Helen M. Bygate J. Fred Kurts }		Feb. 13, '19 p. 338
Indiana County—Central Pennsylvania: 1919							
Buffington Township..	112.0	95.73	10,722.65	Vinton Land Co.	Etta Gibson, et al—purchaser for Vinton Colliery Co		Mar. 6, '19 p. 469
Clearfield County—Central Pennsylvania:							
	5,500.0	40.91	225,000.00	Pittsburgh capitalist	N. D. Kelly of Kelly Bros. Coal Co., Snow Shoe, Pa.		June 19, '19 p. 1142
WEST VIRGINIA							
New River District: 1919							
MacDonald.....	6,500.0	56.00*	364,855.25	New River Coal Co.	Keefer Coal & Coke Co.		July 3, '19 p. 36
Boone County—Kanawha Region: 1919							
	7,000.0	143.00*	1,000,000.00	Youghiogheny & Ohio Coal Co.	Crane Real Estate Trust Co.		Jan. 23, '19
OHIO							
Vinton County: 1919							
McArthur.....	7,019.0	15.53	109,000.00	F. C. Newbury, Phila., Pa.		(Sheriff's Sale)	June 12, '19 p. 1102

* Approx.

The Coal Industry and the Bureau of Mines

BY VAN H. MANNING
Director U. S. Bureau of Mines
Washington, D. C.

BY A curious paradox, much of the work which the Bureau of Mines did in the war period had a purpose exactly the reverse of normal activities. Thus, the gas researches originally made to protect the life of the coal miner were utilized for the production of gases intended to end the life of the Boche. Now the Bureau has turned its face from the arts of war to the fields of peace again. As a byproduct, war has developed another accessory to safeguard the miner, in the geophone, which has already been successfully used to locate men imprisoned in underground workings and for locating water main leaks. This ingenious device seems capable of further development that will be of much benefit in mining operations.

Unfortunately, so far as the coal industry is concerned, the year just past has not been altogether one of peace. The strike of November last has proved that the public needs to take part in the control of wages and prices in so fundamental an industry to protect its own interest. The balance of power is assuredly in the hands of the public, for the parties to this unfortunate controversy represent less than one-hundredth of the people who are dependent on coal for their heat, light and power.

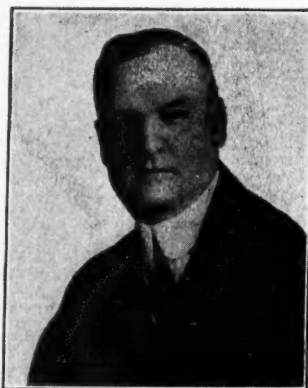
Thirty-nine per cent of the population therefore suddenly found their livelihood threatened at a time when the development of ability to carry the burdens imposed by war required the highest rate of productivity in almost every line. It is significant that the Fuel Administration was called back to function in this national crisis. Little as the American people like public control of private enterprise, it is evident that they will not suffer their collective well-being to be threatened by disturbances at the source of basic supply.

PUBLIC IS IGNORANT OF BASIC FACTORS

Equally unfortunate is the fact that the public is enveloped in a cloak of ignorance concerning the basic factors governing the coal industry. This is not remarkable, since the spokesmen for the miners picture the coal operator as a conscienceless profiteer who denies a reasonable share of his fabulous profits to permit a decent standard of living for the man underground. The operators, on the other hand, portray the miner as an incorrigible slacker who makes large earnings and seeks to get still more pay for less work. The net result is that the general public is bewildered and is inclined to cry "a plague on both your houses." It is to the interest of all concerned that the truth shall be known, for the American public has always been ready to do the reasonable and square thing, when matters are submitted to it on that basis.

Now what are the elemental facts that we have to

RESEARCH, such as looking to the extension of the use of bituminous coal in gas manufacture; the use of lignite as a domestic and power fuel; the appraisal of Indian coal lands, experiments on the use of coal dust as an explosive, and an investigation of the fuel value of Nenana lignite were accomplished by the Bureau of Mines during 1919. Much of the bureau's work, such as the training of men in first aid and mine-rescue training, continues from year to year.



deal with? One of them is that until the war conditions were thrust on us we had always had more coal mines and coal miners than the country really needed, and this situation resumed after the armistice. The reason for this is quite simple. The demand for coal in the winter months

is much larger than in the summer; the daily rate of burning is greater because motive power requires more coal to compensate for radiation when the temperature is low; lighting companies, gas and electric, need more coal to furnish light when the days are short; and the whole consumption for heating purpose is confined to the winter months. Domestic consumers accentuate this situation by waiting until the approach of cold weather to lay in their store of fuel. The coal industry is equipped to meet the peak load of demand, which necessarily means that during periods of low consumption a considerable proportion of it must lie idle. But even with the miners able to furnish the coal, this does not solve the problem in winter, since often there has been a coal famine because of the inability of the railroads to carry the coal to consumers on account of snow blocking the roads, and extreme cold.

MINE STORAGE WILL NOT MEET DIFFICULTY

In other words, the railroads are overloaded at the time of year when they are the least able to carry on their transportation business. Hence, the proposition of storing the coal at the mines, apart from the physical difficulty and expense of so doing, would not solve the problem. Storage at the point of use, however, would go a long way toward solution. However, it must be admitted there are reasons why this is not as simple as it sounds.

The cost of putting coal into storage and taking it out again, including breakage and other losses, is considerable. In addition bituminous coal when piled too high, or when fines and lumps are mixed together, often takes fire from spontaneous combustion. Such occurrences are sufficiently common to act as a decided deterrent to the general practice of storage. On the other hand, bituminous coal for the Great Lake region is mostly shipped on returning ore boats in the summer months and successfully stored for winter use on a large scale, despite occasional spontaneous fires. Not a little study has been devoted to ascertaining the precise cause of spontaneous combustion in coal, without arriving at any exact determination. It is extremely desirable, therefore, that investigations should be made on a sufficiently extensive scale so that the problem can be solved.

As above stated the inequality of production rate at the mines is coupled with frequent inability on the

part of the railroads to move the coal at the rate it is offered. The roads should not be blamed for this, in most instances. Their equipment is available for use the year round, but the demand on it is seasonal, and in the autumn and early winter it is severely taxed to move the crops, let alone coal.

RAILROADS SHOULD MAKE LOWER SUMMER RATES

The railroads have many pressing problems of their own and as the handling of coal is a large part of their business, emergency service for other traffic must often be provided at its expense. Any complete solution of the coal production problem will therefore include some consideration of the problems of the railroads and their effect on coal traffic. The railroads should be authorized to put into effect a lowered freight rate on coal in the early summer months, when the demand is usually light. This should stimulate production, as well as furnish an incentive for dealers and consumers to put their coal into stock. Rates should be so adjusted that the total return to the roads for a year will not be decreased.

The objection may be raised that the plan outlined will, through enabling a small number of mines and miners to produce the present yearly output, force some others out of business. As far as the miners are concerned, this, except in some few individual cases, will not be a serious matter, for the general demand for labor is so great that no man needs to go without work. As far as the companies are concerned a shut-down would be only temporary, for the yearly increase of consumption of coal is so rapid that their output would soon be called for.

What we should look forward to is a state of organization of the coal industry in which the mines would work with the regularity and steadiness of a manufacturing plant. It is not worth while to point out that the miners do not work steadily, but lay off 20 per cent of the time when the mines are in operation. There is a saying "Like master, like man" and if the mines are irregular in operation the miners are likely to be also. In addition illness, religious and national holidays, and personal business cause absenteeism that can never be altogether eliminated. The prohibition of traffic in liquor may be expected to reduce irregularity in attendance of the worker at his work to some extent.

WHAT BUREAU OF MINES ACCOMPLISHED IN 1919

Turning now to a brief consideration of what the Bureau of Mines has been able to do for the coal industry in the year that is past, I would mention especially the research done for extending the use of bituminous coal in water-gas manufacture and the progress made toward an extensive investigation of the use of lignites for domestic purposes and power production. A comprehensive review of the explosion tests of coal dust at the experimental mine, near Bruceton, Pa., was completed during the year, and an appraisal of the coal lands in eastern Oklahoma belonging to the Choctaw and Chickasaw Nations was completed, in co-operation with the Bureau of Indian affairs. An investigation of the fuel value of the lignite in the Nenana field, Alaska, was also made.

Much of the bureau's work for the coal industry continues from year to year, such as the training of miners in first-aid and mine-rescue work, and the study of the explosibility of coal dust. In connection with the former, three new steel mine-rescue cars have been

put into operation, and in Indiana a mine-rescue truck was presented to the bureau by the Operators' Association. The letters that have been received in acknowledgment of the assistance that bureau men have rendered in connection with the various mine fires and explosions that took place during the year have been highly gratifying. The large attendance of teams, from all parts of the country, at the Fourth National First Aid and Mine Rescue Meet held at Pittsburgh this fall was also gratifying evidence of the widespread interest in the work of safeguarding the life of the miner.

PITTSBURGH STATION DEDICATED ON SEPT. 29

The new experiment station at Pittsburgh, which was dedicated to the public service on Sept. 29, affords increased facilities for the work for the coal industry that is being carried on there. The work on permissible explosives and on safety lamps and coal-cutting equipment is so well known as to require no extended discussion. Study of breathing apparatus is being made to increase the safety and comfort of the wearer, thus increasing his efficiency.

Many chemical investigations dealing with the coal industry are in progress in the Pittsburgh laboratories, such as a study of the constitution of coal, the forms in which sulphur occur therein, the fusibility of coal ash, and a variety of other problems that bear on the preparation and use of coal. Mention should be made of the motion picture, "The Story of Coal," which was photographed under the direction of representatives of the bureau, the cost of making the picture having been defrayed by the National Coal Operators' Association. This is of much educational value and has awakened much interest.

In conclusion I wish to thank the men of the coal industry for the hearty spirit of co-operation they have manifested toward the Bureau of Mines, and to remind them that the bureau is their servant. Whatever they desire it to do will be done, so far as funds are available for the performance of the work. Constructive criticism is as welcome as praise, for it is my aim that the bureau shall render the maximum possible service to the industry that it was created to foster and promote.

Japanese Purchase Chilean Coal Fields

According to Commercial Attaché Julius Klein, Chilean mining and investment circles are much interested in the recent announcement that a Japanese syndicate, which owns extensive iron-ore deposits in northern Chile, is now negotiating for the purchase of coal lands in the vicinity of Concepcion, the center of the carboniferous area along the south coast of the republic. The properties in question lie to the north of the Bio-Bio River up to the boundary of Coelemu province and in the vicinity of the port of Talcahuano, the Chilean naval base, including Los Reyes Island. It is understood that negotiations are being concluded with the owners of the El Rosal mines and of the Tomás Riosco properties. Other well-known coal lands now being examined by the above syndicate are those held under the names of Arce, Manuel Hurtado, Carlos Huerta, Fidel Cabrera, and Simon Rebolledo. These estates include some of the oldest and most extensive coalfields in Chile. (Refer to Latin American Circular No. 58 on The Chilean Market for Fuel, which was published Commerce Reports Sept. 2, 1919.)

The National Coal Association in 1919

By J. D. A. MORROW

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SYNOPSIS—*The year 1920 dawns auspiciously. No stocks of any amount are now in the hands of consumers, and the demand is keen. During the year just past much information concerning the coal industry has been collected and disseminated to the parties at interest as well as to Congress and to the public. The work of the association is still going on and its machinery, temporarily inactive on account of government control, is ready and waiting when that control shall be withdrawn.*

NINETEEN-TWENTY, in my opinion, will be a good year for the coal industry. Almost every element in the present situation points to that conclusion. Compare conditions today with those at the beginning of 1919. Then the country was overstocked to the extent of not less than 30,000,000 tons; today stocks have vanished and the whole nation clamors for coal. Then "no market" conditions had started the industry on a seven-months' slump in production that fetched us up 100,000,000 tons short of the previous year's output; now the mines can't produce enough to meet the demand. Then we hadn't had a touch of cold weather and were started—although we didn't realize it at the time, of course—on the mildest winter in many years; now we've already had considerable cold weather and have two and a half to three months yet to go.

It is reasonable to expect a better market this year than last. Business generally has accomplished some of its readjustment to peace conditions and is flourishing. Export requirements are large and depleted domestic stocks must be restored. With the railroads returning to private ownership on March 1 we are more likely to have a problem of production and transportation in the forefront instead of difficulties because of a lack of market for the product.

Once more the beginning of a new year finds the government in control of coal prices. The prices, incidentally, are the same as those in effect a year ago. How long they will remain in effect no man knows, nor can an intelligent prediction well be made. Certainly I should not like to guess at it.

This article is written a few days before the first meeting of the Coal Commission appointed to work out a solution of the strike demands. What wage increase will be allowed is a matter for determination. I should like to point out, however, that if the industry should be required to absorb either the 14 per cent. wage increase proposed or a larger wage increase on the basis of the present government prices, many mines will have to close down. They cannot operate and live under present prices with the increased costs.

The shortcomings of rigid governmental control of prices are strikingly illustrated by this fact, because among the mines that would be forced to close down

would be many high-cost operations that have lived during the past years of severe competition which reduced profits to the vanishing point. These mines have lived because they were producing coal of special quality which was particularly needed by some classes of consumers to whom it was well worth the additional price. The flat government price takes no account of such conditions.

If such mines are forced into idleness, many consumers of special-quality coals will find their business seriously handicapped by the loss of the fuel on which they have depended for years.

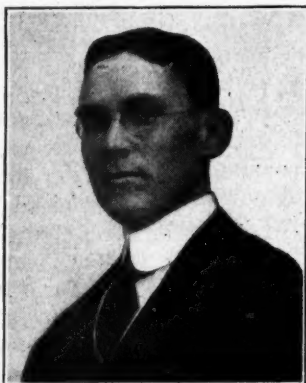
The public has been given the impression that the application of government price limitations would merely put out of business inefficient mines that should not be supported by the public in any event. This conclusion is fallacious. Mines of the type just referred to are not inefficient and the consuming public has been benefited by being able to buy their output even at prices above the market figures for ordinary coal.

The lifting of Fuel Administration restrictions in 1920, however, will find coal producers in a much more advantageous position so far as market information is concerned than they were when the restrictions were lifted a year ago. At that time the producers, of the country were without adequate or accurate facts concerning the prices prevailing in the different fields. No machinery was in motion, none had been built whereby the producer of coal could gage accurately the state of the market. For years the industry had been virtually at the mercy of the buyer and the record contained many instances of flagrant abuse of the buyer's power.

It seemed imperative, when Fuel Administration restrictions were lifted about a year ago, that there should be established a clearing house for market information if coal producers were to avoid a repetition of this situation in the future. Some method whereby the statements of imaginative buyers could be weeded out and set apart from the true facts, appeared highly desirable. Accordingly it was determined to establish exchanges of market information for the chief producing sections, it being distinctly and clearly understood that the only information exchanged should be that relating to transactions closed and past.

Branch offices of the National Coal Association were established in Chicago and Pittsburgh and later in Cincinnati. Through these offices producers in the territories they serve are kept in daily touch with market conditions. They are advised of all sales made by all companies in their districts, the prices obtained in such transactions and other details regarding them. These advices go out daily from the branch offices and are seldom more than 48 hr. old in reaching producers.

Re-establishment of Fuel Administration prices last October has of course rendered this service unnecessary for the time being, as prices are being restricted by government order. However, when the government orders are lifted, as they will be some time, producers



J. D. A. MORROW

will find this clearing house machinery ready to start in motion and continue the information given them in the past. It took more than six weeks to inaugurate this service in the first of the branch offices last year. It will be waiting and ready this year on the day restrictions are lifted.

I suppose the readers of *Coal Age* are all familiar with the advertising campaign carried on by the National Coal Association last summer in the interest of prompt buying. I shall not, therefore, attempt to review that phase of the Association's work; but in view of certain criticisms, I should like to point out that the advertising was carried in about 200 papers; that its preparation was speeded all possible because of what appeared to be the imperative needs of the situation and that therefore there was little opportunity to study sectional conditions and prepare advertisements which would have been peculiarly fitted to sectional requirements. Some of the effectiveness of this advertising may have been lost in the speed with which it was prepared; but the concrete result was that production began to increase from the very day the advertising was first placed and within a month it jumped approximately 2,000,000 tons per week.

AT LAST WE KNOW HOW TO FIGURE COAL COSTS

Another forward step taken by the National Coal Association last year was the presentation to the industry of a comprehensive, complete and detailed method of cost accounting. The necessity of knowing accurate costs is now apparent to everyone in the industry; yet it was only two or three years ago that Chairman Hurley of the Federal Trade Commission stated his conviction that 90 per cent of the coal producers of the country did not know how much it was costing them to produce coal.

There is no need now for any doubt on that score. The Cost Accounting Committee of the National Coal Association after months of painstaking labor perfected a manual which is a model of completeness. The committee's recommendations have been adopted by a great many coal-producing companies, and other firms are adopting them continually. Continuance of this movement will result in placing the entire industry on a uniform cost-accounting basis.

ASSOCIATION GAVE SENATE NEEDED FACTS

The National Coal Association was called upon in September to place the facts concerning the industry before a Senate Committee conducting an investigation into the coal situation. Within a few days after the investigation was authorized by the Senate the basic facts had been collected, compiled and were ready for presentation in graphic form before the committee of inquiry. Officials of the association on the witness stand showed the baselessness of the charges brought both in Congress and out against the industry. The showing thus made would seem to have cleared the atmosphere. The testimony was given wide publicity and the facts were thus placed before the American people, as well as before the Senate Committee. The inquiry is still in progress, although no hearings have been held recently.

It developed during the course of this inquiry and afterwards when the attention of the entire nation was focused on the industry because of the strike situation that many of the elemental facts concerning coal were virtually unknown even to the coal-producers themselves. For instance, there was no accurate information as to

the hundreds of millions of dollars invested in the industry. The sum of the total could be only approximated. Nor was there information relating to stocks in the hands of consumers; to prospective requirements of the country; to employment conditions; to earnings; to increased living costs among coal-mine employes as compared with such costs in other industries, and to a whole host of kindred subjects.

PROFITS HAVE BEEN LESS THAN ALLEGED

The need for such information is obvious. When the facts become known the basis for attacking the coal industry will be dissolved. Such statements as that recently uttered by a former cabinet officer to the effect that coal profits have been enormous can then be readily refuted. In the light of the facts, unwarranted criticism of the coal industry will fall; and such criticism as is warranted will be helpful in correcting such evils as may exist. Until the facts are ascertained, however, the existence or unknown existence of conditions requiring remedy remains in the twilight zone of uncertainty. It is therefore imperative that the facts should be learned.

The task of gathering the facts has been begun by the National Coal Association. At its meeting in December last the association's directors authorized the establishment of a Bureau of Coal Economics, voted funds to enable it to carry on its work and made an appropriation to cover the wide dissemination, through proper publicity channels, of the facts to be ascertained. The association was fortunate in obtaining as the directing head of the new bureau C. E. Leshner, whose excellent work as statistician of the U. S. Geological Survey is known throughout the industry. Mr. Leshner has taken active charge of the task and is pushing it now with his characteristic vigor. The results are already coming in and in the course of a comparatively short time it is confidently expected that this latest effort of the association will begin to bear fruit.

It would appear, therefore, that the coal industry made a long step forward in 1919, notwithstanding the troubles of that reconstruction year. The beginning of 1920 finds the industry far advanced along the pathway which leads to its better welfare.

Right to Cancel Mining Lease

It may be safely said that it is a well-established rule of law in Alabama that so long as a mining lease has been availed of by the lessee, and the lessor has not accepted part performance, the latter is free to bargain on the ground of a lack of mutuality of obligation, consisting in want of a provision in the agreement binding the lessee to institute mining operations. But where the lessor has permitted the lessee to commence and carry on operations, it is then too late to have the lease cancelled as being one-sided. Nor will a lease be cancelled on the ground that the lessee verbally represented to the lessor, when the agreement was entered into, that operations would be commenced very soon, and that the royalties accruing to the lessor would amount to a competence for her; there being nothing to show lack of honest intention to commence operations soon, and the representation concerning what the royalties would yield in the future amounting to the mere expression of an opinion. (Alabama Supreme Court, *Anderson vs. Majestic Coal Co.*, 82 Southern Reporter, 483.)

Coal Exports in 1919

BY DR. HENRY M. PAYNE

Assistant to the President, Bertha Coal Co., New York City.

IN THE ten months ending Oct. 31, 1919, there were shipped from the United States 16,905,250 tons of bituminous coal. In the twelve months ending the same period 19,662,619 tons.

Of this latter amount 7,549,060 tons passed through the ports of New York, Philadelphia, Baltimore and Hampton Roads. During the 5 months, Nov., 1918, to March, 1919, inclusive, 1,433,225 tons were exported through those four ports, exclusively through the Tidewater Coal Exchange by direction of the Fuel Administrator. From April, 1919, to Oct., 1919, inclusive, the export through these four ports was 6,115,835 tons, of which 50.2 per cent passed through the exchange.

The distribution of the entire year was as follows:

	Per Cent
Canada	59.9
Italy	9.4
Cuba	5.0
Brazil	3.6
Argentina	2.7
West Indies	1.4
Uruguay	1.0
Mexico	0.5
Chile	0.5
Panama	0.3
Other countries	15.7

In view of the difficulties surrounding the export trade during this period, and facing the demand for American coal abroad at the present time, we may well consider the export matter as worthy of earnest study.

The United States Shipping Board has done its utmost to effect efficient allocation, and at the same time has properly exacted of foreign nations possessing the requisite tonnage that their bottoms should be supplied for the transport of their own coal as far as possible.

OTHER PROBLEMS CONFRONT THE FOREIGN BUYER

Greater than the problem of ships, however, are the questions of classification and inspection. The exactitudes of the foreign buyer are no greater in coal than in any other basic industry. Clean coal, well prepared, from recognized mining districts is analogous to any standard article of merchandise exhibiting a high grade of workmanship, and a uniformity of product. To bring about such a condition in the export coal industry requires a broad, comprehensive, uniform and authoritative system of inspection, preferably at the point of loading, certainly not farther advanced than the scales, and absolutely not at Tidewater.

In connection with such a system of inspection, and functioning co-operatively therewith, there must be a still further classification of American coals available for export. To argue against such a grading and inspection is to become a modern "Don Quixote."

Given a classified list of available coal, and an assurance of its proper preparation, the foreign buyer may intelligently begin his negotiations. At this point, the seller, having safeguarded the consumer by asserting and certifying to the standard of quality of his product, may properly in turn protect himself through the provisions of the Webb-Pomerene bill against ruinous price cutting, and at the same time may establish for himself a personal reputation for his own product and retain his individual foreign agencies and customers if he so desires.

No longer may the doctrine of *caveat emptor* be arrogantly flaunted with any hope of commercial success by those who would flood the market with a coal unsuited to the requirements of the buyer whose delivered cost is approximately one-seventh the coal itself and six-sevenths transportation. In order to bring about the required conditions enumerated above, the coal export corporation developed through the efforts of the American Mining Congress and its export committee, is designed to provide the necessary machinery for both buyer and seller, in order that collective buying as already in vogue, may be met by collective selling, and at the same time offer the widest latitude to the individual operator, wholesaler or exporter.

FOREIGN TRADE REQUIRES MUCH ATTENTION

From the standpoint of the industry itself, no single phase bears more directly on the equalization of working seasons for the miner than the development of the export trade. According to the estimate prepared by the Bureau of Mines, we may expect a minimum annual demand of 31,000,000 tons, of which 9,000,000 tons will be called for by South American and West Indian ports, while the balance will go to Europe. There exists an available world market for 90,000,000 tons of American coal per annum, if this amount can be mined and exported.

This must necessarily be supplied from the Eastern fields, much of whose product is at present going to the Lakes and the Northwest. To replace this tonnage will be the privilege of the Central and Western fields, who thereby receive direct benefit from any increase in export.

The fact that the bulk of export coal is normally shipped between May and October, both because of lower ocean freight rate and insurance, and on account of the inaccessibility of northern European ports in winter, offers the American operator the necessary opportunity to work his mines on full time during the heretofore dull season. This, coupled with Director Manning's recommendation for a railroad freight differential on coal during the summer months, would prove a potent factor in the accomplishment of the 300-working-day year for the miner.

The U. S. Bureau of Mines, viewing the export of coal to European ports as a relief measure analogous to food supply, has co-operated heartily with the export committee. The Shipping Board is earnestly working to equalize cargoes for the return trip on coal-carrying vessels. The results of the combined activities of these various agencies, centralized in an export organization cannot fail to assist in establishing a firmer condition in foreign exchange, whose rapid fluctuations at present militate against the closing of long-term contracts for export coal.

Hearty co-operation along the lines indicated, by all concerned, during the coming year, will create a permanent market for recognized American coals at a fair price throughout the world, and will do much toward satisfying the demands of labor.

What Well Known New York Coal Men Think of the Future—With Some Remarks on Coal Exports

TO OBTAIN an idea of what representative coal men believe 1920 will hold in store for the industry, *Coal Age* has invited comment from a number of large jobbers and shippers who maintain offices in New York City. The following statements are typical of the many answers received, and are reproduced to show the spirit of optimism possessed by men in the trade who are in position to know what they are talking about.

C. ANDRADE, JR., *Treasurer of the Matlack Coal & Iron Corporation.*

THE exporters, ship owners and ship operators of the United States have had now over two years of Government control, and the universal opinion is that this control should end.

The President has come out unequivocally in favor of private ownership and control of merchant vessels, but in spite of this fact, he keeps in office the Shipping Board, and permits it to continue its operation of merchant vessels in competition with those of private owners. The result is disastrous to the privately owned ships, as they cannot enjoy a normal business as long as the shipping market is so largely controlled by the vessels of the United States Shipping Board.

Even during the most serious portion of the war period, there were times when ships were held by the United States Shipping Board for weeks, or sometimes months, idle and without occupation. This was during the time when ships were in urgent demand.

There were other instances in which steamers were made to do work which could have been done exactly as well by sailing vessels, thereby withdrawing a portion of the steamship tonnage badly needed to transport troops and munitions to Europe. The best known instance of this practice was the case of the triangular movement of steamers from Great Britain to the United States empty, from the United States to the River Plate with coal, and from the Plate to Great Britain with wheat or meat.

This involved a round trip of 15,000 mi. for the steamer. The same result could have been achieved by letting the steamer go back and forth from Europe to America, and allowing sailing ships to carry the coal down from the United States and the wheat and meat from the River Plate back to this country, transferring the cargoes from the sailers to the steamers at Atlantic ports.

By operating the steamers in the way they were handled they were made to travel 15,000 mi., while they could have done the same amount of work by traveling 6,000 mi., namely, from Europe to America and back. The steamers therefore wasted 9,000 mi.

every round trip they made, and during all of this 9,000 mi. they were burning coal which was sorely needed at the time both in America and Europe.

It was stated under oath before the Senate Investigating Committee, when looking into the Cuban sugar question, that ships were held in American ports for long periods of time when sugar cargoes were actually waiting for them in Cuba.

Only a few months ago the Shipping Board did something which resulted in a great loss to American ship owners as follows: The freight rate on salted hides from the River Plate to the United States was \$50. This was the Shipping Board rate, and it was the going rate for all vessels. On the strength of this rate, American merchants took ships on time charter for the South American trade. After these charters were closed, the Shipping Board suddenly dropped its rate to the extent of 30 per cent, that is, this rate was decreased from \$50 to \$35. The entire ship market instantly responded to this reduction; and many concerns that had taken ships on a time charter suffered a heavy loss in consequence.

Under the regime of the Shipping Board there was a period of seven months during the last part of the year 1918 during which this board prevented American merchants from carrying American coal to the River Plate ports in South America. This business, which was taken from the American merchants, was given by the Shipping Board to the British Ministry of Shipping. The result was that English merchants chartered ships of any nationality, sent them to Hampton Roads, loaded them with American coal, and sold their cargoes to the customers of American merchants in the River Plate. This led to heavy losses by the Americans who were in that trade.

Another instance in which the Shipping Board made a great mistake was in the form of the Norwegian sail charter, which contained provisions so drastic that it paralyzed American coal exports for some months. This charter form made the American merchant a virtual insurer of the ship's time, and favored the foreign ship owner in every way at the expense of the American merchant.

About two years ago the American Manufacturers' Export Association, embracing in its membership the

largest manufacturing concerns in America, passed a resolution favoring private ownership and control of merchant vessels, and expressing the hope that Government control would quickly come to an end.

Under the act of Congress which created the Shipping Board, this body has the right to continue in existence five years after the declaration of peace, but it is to be hoped that its mistakes of the past will lead it to give up its hold on the American shipper long before that time has elapsed. In fact, it is the feeling in the best informed shipping circles in America that the abolition of the Shipping Board at this time would be advantageous to everyone concerned. This involves no reflection on the present personnel of the Shipping Board. Some of its members are gentlemen of proven ability. The trouble is not with the men involved, but with the system.

DISTRESSING EFFECT OF UNDULY LOW PRICES

The difficulties and hardships created by Government control of the production and distribution of coal are so well known to the trade as to be hardly worth repeating. Everyone will remember how the operators met in the spring of 1917, and agreed with Secretary Lane on a mine price of \$3. This would have brought out the maximum production, but immediately the price was announced, the Secretary of War and the Secretary of the Navy stated that the price was too high, and insisted that it must be reduced. The result was that all the large jobbers stopped buying, as they did not wish to purchase on a falling market. As soon as they stopped buying, many of the mines had to shut down because there was no place where they could dispose of their coal.

The result was that throughout the summer of 1917 the coal production of the country was cut down materially, and the coal which would normally be moving by rail from origin points to destinations for winter storage, did not move at all. Late in August the President fixed the \$2 mine price, which was below the cost of production for a number of mines, and which resulted in their immediate shutdown. This still further curtailed production, and led to the coal tie-up of the winter of 1917-1918.

DID NOT REALIZE CONDITION TILL WINTER CAME

Dr. Garfield really did not understand the seriousness of the situation until cold weather set in, and then frantic efforts were made to move the coal which should have been moving since the preceding April. Of course, it was physically impossible to do this; and the result was that the country had to go without fuel, even to the extent of shutting down essential war industries in many cases.

Any one at all familiar with the situation will concede freely that if the operators' \$3 price agreement with Secretary Lane had been kept in force, and if the producers had been permitted to handle their own business of producing and distributing their coal, the country would have had a much better fuel supply than under government management.

The difficulties created by government control have been forcibly illustrated in the last few weeks. For as soon as the coal strike was announced, the Fuel and Railroad Administration began a drastic set of orders which tied up all the coal, and which prevented even the bunkering of ships for some little time when they were sadly needed in world transportation.

Many volumes could be written on the unnecessary hardships and inconveniences created by government control, and it is the general consensus among business men at this time that the industries of the United States should be permitted to resume the methods of procedure under which they flourished prior to the war.

From the beginning of our national history, down to the year 1917, our country was built up on the theory of individual ownership, management and control of its industries. The war was made an excuse by the Administration for trying socialistic experiments in the United States on a scale hitherto undreamed of. The result was disastrous to the individual manufacturers and merchants, as well as to the nation.

THE RESULT OF INDIVIDUAL OWNERSHIP

The United States won its pre-eminent place in the commerce of the world under the theory of individual ownership and control, and if the socialistic experiments of government control are continued much longer, we may look for a serious decrease in our industries and trade, and a loss of the place that we previously won in the world's commerce.

This is a subject which vitally concerns every merchant, manufacturer and individual in the United States, and as a mere matter of business precaution, every man who reads this article should write to his representatives and senators and urge such legislation as may be necessary in order to take the business of this country out of the hands of government officials, and put it back into the hands of the men who created it.

The great industries of the United States were not created by the government or by government officials. They were built up by men, who, like Carnegie, began at the bottom and worked to the top, men who created great industries because of their pre-eminent ability in this direction. It is the height of absurdity to take these industries out of the hands of the men who created them, and turn them over to a lot of political theorists, who never in a thousand years could have built up the machinery which now they are attempting to operate. They will wreck that machinery to a certainty if they are allowed to play with it long enough.

WILBUR A. MARSHALL of W. A. Marshall & Co., President of the Wolf Den Coal Co., and President of the Wholesale Coal Association of New York.

IT IS to be hoped that the year 1920 will bring forth better results than accrued from the efforts of 1919. Coal men generally anticipate an improvement. Except for the recent unfortunate events by reason of the widespread strike bringing into effect government control, we can practically say that the transition period from a war condition to a peace basis has been completed. This applies to all lines of business, and industrial activity.

THREE MONTHS OF PROSPERITY

For three months, August, September and October, the coal business enjoyed a most satisfactory condition. No control, allowing a natural freedom of action, a healthy demand with fair prices, but none that could be criticised existed, as well as a generous but not full car supply. These conditions resulted in a fair profit to all concerned and offset to a considerable extent the losses incurred during the previous months of the year.

November and December were affected by the country-wide strike and the blight of government control. This latter still exists at the time of this writing, resulting in a greatly depreciated volume of business, unbalanced deliveries to consumers and a maze of prices caused by unstudied regulations. However, it is expected that this control will soon be ended and confidence of good times ahead prevails. This is based upon the fact that consumers have largely used up the abnormally large stocks accumulated during 1918 and 1919 and that while not many have yet come into the market they will soon do so and that there will be as a result a greater buying demand than during the past year.

This confidence is dampened somewhat by the fear of fuel oil competition and there is no doubt but that oil will seriously affect coal in certain sections, as it has done already in some localities. It has made serious inroads upon coal in New England during 1919 and the indications are that it will do greater damage around New York, Philadelphia and Baltimore in 1920.

Many of the largest consumers are already making installations of fuel oil burning apparatus and others are preparing to do so. It is imperative that coal men bestir themselves to meet this competition.

FAVORABLE PROSPECTS OFFSET INVASION OF OIL

To offset this gloomy outlook, however, is the rapid increase in the number of new factories being erected as well as additions to old ones. This is going on in practically every town or city of manufacturing importance, and may to a large extent offset the loss of those customers turning to oil.

In addition to this there exists a favorable outlook for exports. For the two months previous to the advent of the strike, this country was exporting to the practical limit of the pier capacity of Hampton Roads, Baltimore and Philadelphia, and the trade naturally looks forward to an immediate resumption of this business. The great trouble, however, is that the capacity of the pier facilities takes care of but a limited proportion of the mine output of the East let alone of the country or of the steamer capacity. This available business will therefore be constantly annoyed and restricted by coal congestion at the piers and the resulting embargoes and necessity of the use of the permit system. This will result in a high cost of operation, heavy detention charges on steamers, disputes between shippers and exporters, damage suits, etc. As a whole, however, the export business at least for a time will be of a distinct benefit to the coal trade, and of direct advantage to those producing the high-grade fuels suitable for this class of business.

The demand will gradually tone down, however, unless there is an improvement in the exchange situation. If this is accomplished by the granting of a new loan of the size now mentioned in the newspapers (\$35,000,000,000) we must expect another 100 per cent of inflation of values running the full gamut from wages to the finished product of all commodities. In such a case such inflation might affect this country only, as it will be the holder of the securities representing the loan. Such a situation might prove to be extremely embarrassing.

The labor situation is unlikely to give any further trouble for 1920 unless there is further inflation as before mentioned. The past year was as unfavorable for the miner as it was for the operator. Both suffered from the same causes—lack of business in the first half

of the year followed by three months of good business and then a strike for six weeks. It is unlikely that any further material increase in wages will be granted if the operators present facts clearly and completely. A thorough investigation is almost certain to develop the fact that an industrious miner can earn a much greater amount of money with the same effort than can any other man equally skilled. Stress has been laid upon the fact that miners do not get steady work. This is true to a considerable extent—but inquire into other lines and see if it is not true there also.

The railroad situation affords room for thought. The trade looks forward to an increase in rates effective not later than April 1 next. What this increase will be on coal no one knows. Many look forward to the day when the roads will again be under private control, but the general results to the coal trade are unlikely to show any general improvement. In fact I look for a poorer average car supply than has existed under the pooling system adopted under government management. It is hoped that there may be found a way to continue this practice, as well as some of the others that have been recently germinating in railroad manipulation.

It is expected that the results of the year's work on reclassifying coals in the pools of the Tidewater Coal Exchange will be announced in the near future. Operators and consumers alike are showing considerable interest in the development of this work. I am in position to say that under the new classification a great improvement has been made, although there will be some irregularities to be ironed out pertaining to some of the high volatile fuels. However, it can safely be stated that pooling of coal has come to stay and that the irregularities will be removed in time as the necessities arise.

ARTHUR F. RICE, *Commissioner of the Coal Merchants' Association of New York City.*

WITH the war at an end and the passing of the Fuel Administration it was natural to suppose that the retail coal business would fall back into its old channels and comparatively tame existence. As a matter of fact, however, there have been inaugurated here and put into effect some of the most startling changes along constructive lines that have ever occurred in a single year. Conservation, co-operation and co-ordination are terms that took on a new and more significant meaning during the war, and men began—subconsciously perhaps—to apply them more in their own affairs.

The economic wisdom of combining many dealers into a few concerns had often been discussed in years gone by and a few abortive attempts made to bring this about; but the time had at last arrived when such things as overhead expense, long hauls and the unnecessary duplication of service began to receive the serious attention they deserved. As a result there have been absorbed into three concerns about 20 dealers, or about one-third of those doing business in Manhattan and the Bronx. While it may be too soon to accurately predict the results of this radical change in the structure of the retail coal business in this city, there seems to be no reason for doubting that both the trade and the community will profit by it.

The coal trade has for some time believed—or tried to believe—that fuel oil as a competitor of or substitute for coal was not to be considered as worth worrying about; in fact, a good many arguments have been dis-

covered to prove this, but unfortunately some of them are unsound, as the fuel oil people have proceeded to demonstrate. Here in New York a start has already been made, several concerns having prepared to make the change. The same is true of Chicago and several other cities.

If we should assume that oil will ultimately displace any considerable amount of coal here, as it already has in many other places, it would appear that the dealers must adopt one of two alternatives; either sit by and see a large part of their business slip away from them, or handle oil themselves in connection with coal, just as they now deal in wood and other fuels.

The marketing of the steam sizes has become more and more difficult, and now, with fuel oil coming into the field, the problem is a serious one. Even the soft coal strike did not noticeably stimulate trade in them, but there are forces at work which I believe will ultimately remedy this condition to a large extent.

One solution would be to utilize the small sizes in generating electric power in the vicinity of the mines and transmitting it to the large cities. The briquetting problem too seems in a fair way of being solved. A still broader opportunity lies in the practical and growing use of these grades in the form of pulverized coal.

There is still another means of helping the situation, namely, the utilization of buckwheat No. 1 for domestic purposes. With proper appliances there is no good reason why buckwheat should not be absorbed altogether in this way, thus taking at least 10 per cent out of a class of fuel that is most plentiful and adding that amount to a class that is constantly becoming scarcer and dearer. This is a proposition in which the wholesalers and retailers can and should work together.

Unlike most industries, the coal business is widely scattered and embraces three separate and distinct branches, each with its own methods and policies and sometimes seeking to insure its own prosperity at the expense of the others. When this business shall have been so co-ordinated that the producers, carriers and distributors work together like partners in one big concern, the results, in economy, efficiency and good feeling, will be of advantage to everybody. I believe the day is not far off when some of these results will be realized. A policy which is manifestly to the interest of all concerned should ultimately prevail.

C. W. PROCTOR, *President, Calumet Coal Co., of New York, N. Y.*

THE part of the trade whose business consists wholly, or in part, in the bunkering of vessels at ports along the Atlantic Coast will long remember the year 1919.

Bunkering is normally fraught with more hazards than beset any other branch of the coal trade, but the year 1919 contributed so many additional vicissitudes that it leaves considerable of "frazzled" news behind as it passes.

In every harbor along the coast labor troubles interrupted the delivery of coal either wholly or in part during a considerable portion of the year. In New York Harbor critical conditions obtained because of the second protracted strike of the longshoremen.

Barely six months of the twelve found the miners digging coal, and those engaged in transporting it by water, working at the same time.

The price of spot bunkers varied somewhat within a

range of about two dollars a ton. Contracts on foreign owned vessels that started bravely forth at \$7.50 or thereabout, the maximum Garfield price during both periods of government price control, fell below \$6 and even \$5.50 spot quotations during the spring and midsummer period. Red hot cables from abroad demanded to know why current quotations should vary as much as \$2 from the price of a contract. It was hard to explain by wire 3,000 miles or more that these quotations were made on single barge loads of coal, or on coal for a single bottom, and largely by concerns not engaged regularly in the bunker trade, either able or willing to perform bunkering at a fair price when conditions should be reversed. However this condition led to the abrogation of many contracts either wholly or in part as regards the matter of price, and led to the birth of the "sliding scale contract" with a maximum of the old \$7.50 government price, and such reductions therefrom as the buyer could obtain and the seller agree to make.

Prices for the coming year are largely "up in the air." The contracts for the large transatlantic lines are believed to have been closed at prices well in advance of \$7 alongside, and those who closed in the early fall at \$6.50 are surely not hoping for the arrival of many vessels on their contracts, under the conditions now ruling; for the last week of the old year saw owners begging for coal at the old maximum price of \$7.50 alongside, and willing to pay demurrage at the loading port in excess of 48 hr. Recent experiences of both owners of vessels and would-be purveyors of bunker coal should tend to shake out of the business the concern that believes it can supply coal to shipping at the same price it can to buyers ashore.

LOOKING FORWARD

The trade looks ahead to 1920 with the hope that is half a prayer that the temperamental longshoremen and his friends on the river and harbor will continue in agreement with their employers, and that the gentlemen who dig the coal and their friends who assist them in getting their product to pit mouth and onto the railroad cars may consent to continue at some stated rate that will net them not more than twice the salary of the professor in our largest universities.

Fuel oil looms large on the horizon. The trade hears daily of the conversion of former coal burning vessels to fuel oil. Just how much of a menace oil will become is largely problematical and so many factors enter into the matter that its discussion at this time would be idle. The available supply of oil is largely determined by the discovery of new wells, the life of any being of comparatively short duration. Coal being a fixed quantity will not be seriously disturbed except during dull markets, when the tonnage already lost may be a factor to some extent.

With a peace actually completed and proclaimed, credits established here for the nations needing in abundance everything that we have, the trade would look forward with renewed confidence to 1920. At the present writing this seems not unlikely in the near future, and this situation, labor in this country consenting, would portend a steady uninterrupted movement of shipping from our shores which would mean necessarily business in the way of bunker coal.

The days of governmental control seem to be numbered. This will be something to be thankful for in 1920.

Anthracite Conditions in 1919

BY EDWARD W. PARKER

Director of the Bureau of Anthracite Information,
Philadelphia, Pa.

THANKS to the long established influence of the Anthracite Board of Conciliation for fairness in dealing with labor problems the representatives of the anthracite mine workers on the board in the latter part of September, 1919, proposed to their fellow members representing the operators that the terms of the supplemental agreement of Nov. 15, 1918 (supplemental to the agreement of May 5, 1916), should remain in effect until March 31, 1920, when the basic agreement of May 5, 1916, will terminate. In view of the continued high cost of living (to provide for which the increases in wages granted by the supplemental agreement of Nov.

15, 1918, had been made), the proposition submitted by the mine-workers was acceded to and on Sept. 29 at a meeting held in Philadelphia the wage scale agreed upon the previous November was extended until March 31, 1920, and the continuous operation of the anthracite mines throughout the winter of 1919-20 was assured.

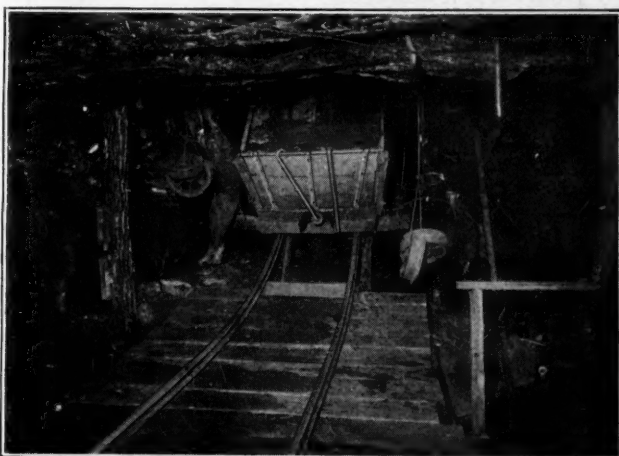
The only disturbing incident in the otherwise even tenor of anthracite production and distribution during the calendar year 1919 was one of psychological conception following the relinquishment on Feb. 1 of the governmental control and supervision of the hard-coal industry. From the effect on the trade that immediately followed the releasing action of the Fuel Administration, it might have been inferred that buyers of anthracite, both dealers and consumers, had the firm impression that the prices of anthracite had been maintained at higher levels than conditions of the trade warranted and that with the withdrawal of Government support of such prices substantial declines would naturally follow.

The attitude of the United States Fuel Administration toward the anthracite industry was not so well understood or appreciated by dealers and consumers as it was by those engaged in production. When the prices of bituminous coal were fixed by the Fuel Administrator, consideration was given to the difference in the cost of production in the various important districts and prices adjusted accordingly, the only real injury done to the industry being the temporary dislocation of markets through a zoning system of distribution. In the fixing of anthracite prices practically no consideration was given to costs of production nor to the fact that a material part of the output was being produced not only without profit, but at a loss.

In November, 1917, when it was found necessary to give the mine workers an advance in wages in order to meet their increased living expenses, it was estimated that the wage increases then made would add approximately 45c. per ton to the cost of production. The Fuel Administrator, however, evidently considered

that the anthracite operators had estimated this cost favorably to themselves and permitted an advance of only 35 cents a ton. It has been shown, however, by R. V. Norris in a paper read before the American Institute of Mining and Metallurgical Engineers in February, 1919, that from figures taken from the books of companies producing more than 99 per cent of the total output, the actual increase in labor cost due to the increased wages was 76.3c. per ton, or more than 40c. per ton that was allowed by the Fuel Administration.

In November, 1918, it was found that because of the continual advance in the cost of living, a further advance in wages as a so-called "war bonus" was necessary in order to keep the men in the mines, since higher wages offered elsewhere were alluring many workers from the anthracite fields. It was estimated that the advance then proposed would increase the cost of producing the entire output 74c. a ton, or \$1.05 if spread only over the prepared sizes. This time the Fuel Administrator permitted the advance of \$1.05 on prepared sizes, but did not permit any additional advance in price to make up for the losses



LANDING OF PLANE AT PINE HILL COLLIERY NEAR MINERSVILLE, PA.

sustained through the agreement of the year before.

It was not until the Fuel Administrator was laying down the burden of his responsibilities on Jan. 31, 1919, that he made belated amends for the injustice which had been done to the anthracite industry by his Administration. He then admitted that the prices allowed for anthracite were not high enough to permit any considerable portion of the output to be mined at a profit. It might be well to quote here the exact words of the Fuel Administrator, issued at the time he relinquished control of the production, prices, and distribution of anthracite. He said:

"For the purpose of arriving at a fair increase in price to cover the increase in wages recommended by the War Labor Board last October, an examination was made to determine the costs of the various anthracite-producing companies. The result of this examination showed that the general increases in the price of materials and labor have raised the cost of mining anthracite to such an extent that many of the companies were not receiving a fair return and that some producers of necessary coal were actually sustaining a loss on the sale of coal at Government prices, in spite of the two increases allowed on account of the advances to labor.

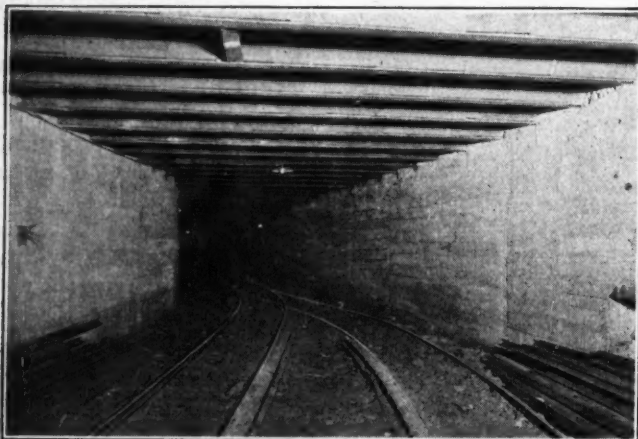
"The above statement is made . . . out of fairness to those companies who have patriotically kept up their production to war needs, even at a cost which resulted in many instances in a loss, not only by individuals, but also by some of the railroad companies."

"Had the Fuel Administration's active control over maximum prices on anthracite coal been continued, the cost examination above referred to shows that it would have been necessary, on the basis of the present wage scale, to raise these maximum prices possibly as much as 50c. a ton . . . to prevent financial embarrassment and perhaps the closing of operations, producing a substantial per cent of the necessary anthracite output."

This statement did not receive the publicity through the daily press that it should have had, though it was published as an advertisement in most of the leading dailies in the anthracite consuming territory. Con-

sumers accordingly did not realize that there would not only be no general reduction in the prices of anthracite, but that on the other hand, as shown by the statement of the Fuel Administrator, advances were justified and would probably be made. In addition to the hope for a reduction in prices, there was the fact that on account of the abnormally mild weather of the winter then closing, the majority of the consumers in the anthracite-burning territory had sufficient supplies of coal on hand to carry them over until the warm weather. Not only did dealers and consumers stop buying, but orders already placed were cancelled.

The effect of these combined influences was that the production of anthracite in February and March was scarcely 65 per cent of normal, the shipments in each month being less than 4,000,000 gross tons, against approximately 6,000,000 tons under normal conditions. The aggregate loss in output in these two months was between 4,000,000 and 5,000,000 gross tons, a deficiency that was for the time being well taken care of by the surplus carried over by domestic consumers as a result of the mild weather which prevailed during the preceding winter.



FOOT OF NO. 1 SHAFT, LOOMIS MINE, DELAWARE,
LACKAWANNA & WESTERN R.R. CO.

In order to meet this situation, a vigorous "Buy Early" campaign was inaugurated. Although this was somewhat unorganized, it proved effective, for early in April market conditions changed for the better almost as suddenly as they had changed for the worse ten weeks before, and after about April 10 the demand for domestic sizes was fully up to the supply¹, indicating that the buying movement started none too early and that the "Buy Early" campaign was justified. It was felt, and rightly, that if consumers delayed laying in their supplies for the present winter it would be a physical impossibility for the mines to produce the tonnage needed for the anthracite consuming public. As it happened, no serious inconvenience has resulted.

The enforced idleness at the mines was not of sufficient duration to cause discontent among the miners, but may, on the other hand, be said to have been sufficient only to provide a season of needed vacation and rest, for these men had put in two strenuous years in loyal and praiseworthy efforts to meet the extraordinary demands growing out of the world war. It also furnished opportunity for needed repairs and for the

¹An exception to this should be noted in regard to pea coal, which dragged throughout the entire year. The supply of steam sizes was constantly in excess of demand even during the six weeks of idleness among the bituminous miners. The territory that consumes the larger part of the anthracite production was not seriously affected by the strike in the bituminous fields.

prosecution of development work that had been neglected under the stress of securing maximum production.

In spite of the decreased production in February and March the output for the year will compare favorably with pre-war records. It is estimated that the total production in 1919 amounted to 77,200,000 tons, a decrease as compared with 1916, the latest normal year, of only about 1,000,000 tons, and this, as previously stated, was negligible as it was more than made up in the supplies carried over by consumers from the previous winter.

The annual production of anthracite since the beginning of the present century has been as follows:

Year	Gross Tons	Year	Gross Tons
1901.....	60,242,560	1911.....	80,771,488
1902.....	36,940,710	1912.....	75,322,855
1903.....	66,613,454	1913.....	81,718,680
1904.....	65,318,490	1914.....	81,090,631
1905.....	69,339,152	1915.....	79,459,876
1906.....	63,645,010	1916.....	78,195,083
1907.....	76,432,421	1917.....	88,939,811
1908.....	74,347,102	1918.....	88,237,575
1909.....	72,374,249	1919.....	77,200,000*
1910.....	75,433,246		

*Partly estimated.

Wankie Coal Field of Rhodesia

At a meeting of the Midland Junior Mining Engineers, held at Sheffield University on Monday, Major B. Lightfoot gave a paper upon the "Wankie Coal Field of Rhodesia," in the course of which he showed that the coal was not of the same age as English coal, but was deposited whilst the Permian and Triassic rocks were being formed. The coal was only formed in the deepest hollows—in big lakes in these hollows—and later all was covered up by the forest sandstones. The floor consisted chiefly of granite and schist, in which were found all the gold mines.

The haulage was so great that Wankie was the only developed coalfield, and this had 212 miles haulage to Bulawayo. The mine was still the only coal producer in Rhodesia. The coal was of an excellent quality, and had a high calorific value, being superior to any Transvaal coal, equal to the best Natal coal, and, but for its high percentage of ash, would be equal to Welsh coal. Taking the average of 21 analyses, the following was shown: Fixed carbon, 66.13 per cent; volatile matter, 20.38 per cent; moisture, 0.88 per cent; ash, 10.61 per cent; sulphur, 2.00 per cent. Calorific value, 13.23 lbs. of water evaporated.

As the reserves of coal in the area were far ahead of present requirements, no attempt had been made at the colliery to make a definite estimate of them. A. R. Thompson (general manager at the colliery) estimated that the coal extended through a low-lying area between the mine and the Dekka River, a tract roughly 25 miles in extent. He deducted losses in working, and allowed 4,000,000 tons of coal per sq.mi. so that there would be 100,000,000 tons in this area alone.

H. B. Maude gave 201,200,000 tons as the reserve in the area. It was estimated that coal was to be found throughout an area of 150 sq.mi. without the limits of the field being reached in a north-easterly direction. This would raise the estimate, adopting Mr. Thompson's view for the tonnage per sq.mi., to 600,000,000 tons. In view of the immense reserve of coal still existing at Wankie, it was not likely that any attempt would be made to prove the possibility of a concealed coalfield, but if ever such an attempt were made the structures brought out by the mapping of the Wankie coal field should be borne in mind in selecting sites for boreholes.—*The Iron and Coal Trades Review.*

Anthracite in New England in 1919

BY G. G. WOLKINS
Boston, Mass.

USUAL plans for distribution were set awry during 1919. The unfortunate experiment with the Reading barges at Port Reading and the two protracted wage controversies cost New England heavily, both in increased charges and in diminished receipts. Retailers were kept on the ragged edge of supply until almost the very end of December, and probably there never was a year when the ultimate consumer was so eager to buy early and heavily. During the period beginning Sept. 1 the all-rail deliveries were much heavier than the year previous and did much to allay anxiety. After April there was a sustained insistent demand for domestic sizes, which kept up until Dec. 15.

The year began with a daily average of 330 cars all-rail, most requirements comfortably supplied, and confidence everywhere that 1919 would prove an easy season. Allotments made by the fuel authorities were

APPROXIMATE COST OF READING COAL ALONGSIDE BOSTON
DURING 1919

White Ash	Jan. 1	Apr. 15	Sept. 1	Dec. 31
Broken.....	\$10.01	\$9.17	\$9.67	\$9.94
Egg.....	9.61	9.02	9.52	9.79
Stove.....	9.86	9.27	9.77	10.04
Chestnut.....	9.96	9.37	9.87	10.14
Pea.....	8.31	8.43	8.79	9.05

soon withdrawn, restrictions were off, and distribution was once again left to trade channels. The generally mild winter made demand uncertain and more than once there were cold snaps that caught several of these timid buyers without adequate stocks, but by February all anxiety was ended and the market was abundantly supplied.

The "independent" shippers, in particular, found the going hard. Through two years of a steady demand they had taken in many instances the limit of price for both coal and freight, and now that there was a surplus of broken, egg, and pea sizes, their efforts to move them were unavailing. The retailers were relieved that they were no longer dependent upon these sources.

The last eight days of January saw the movement jumping to 511 cars all-rail, and there was a correspondingly improved volume by water. Over-shipments

ANTHRACITE MOVEMENT ALL-RAIL THROUGH NEW ENGLAND
GATEWAYS

	1918 No. of Cars	1919 No. of Cars
January.....	.....	.....
February.....	.....	.....
March.....	.....	.....
April.....	.....	10,609
May.....	.....	10,517
June.....	.....	9,208
July.....	.....	10,756
August.....	18,364	11,013
September.....	16,283	11,864
October.....	13,688	14,320
November.....	11,158	12,885
December.....	11,595	14,046
Average No. of cars monthly, Aug. 1-Dec. 31, or in gross tons.....	14,217	12,825
45 gross tons to a car.....	639,768 g.+	577,125 g.+

were frequent; orders that buyers had forgotten to cancel were shipped to the limit, and demand even for the range sizes eased up notably, not only in Philadelphia and New York but in this territory as well. January retail deliveries were about one-third normal and orders melted away like snow in July. It was clear by Feb. 10 that the bottom had dropped out, for the

house trade was off 50 per cent; "the last third" of fuel regulation fame was a myth, and continued mild weather along with the psychology of the situation induced Boston dealers to reduce prices.

A campaign of newspaper advertising on the part of operators doubtless did much to start retail buying in the spring. The object was to lay a foundation for

RELATIVE COST, BITUMINOUS, RAIL VS. RAIL-WATER-AND-RAIL

	All-Rail (Standard Miller Vein, Pa.) \$2.95	Rail-Water-Rail (Pocahontas) \$2.35
F.o.b. mines, net tons.....	.....	.....
F.o.b. mines, gross tons.....	3.304	2.632
Rail freight to Lawrence, Mass. (tax in- cluded).....	4.12	.....
Rail freight, mines to Norfolk, Va. (tax included).....	.....	2.06
Steamer rate, Norfolk-Boston.....	.....	2.00
Tax.....	.....	.06
Insurance.....	.....	.03
Selling commission.....	.168	.168
Discharging, Boston.....	.....	.35
Tax on discharging.....	.....	.01
Rail freight, Boston-Lawrence.....	.....	1.05
Tax on rail freight.....	.....	.03
Total.....	\$7.592	\$8.39

monthly advances beginning May 1, and more or less discussion was occasioned. The publicity given parts of Dr. Garfield's farewell address was particularly the subject of comment, and there was a strong feeling that too much reliance had been placed upon cost estimates submitted by small operators who had not been able to sell coal in competition. In other words, there seemed a disposition to lift prices so that any operator could mine at a profit, whether his particular output was necessary or not. All this, however, was at a time when there was plenty of "free" coal. Two months later, when the demand was certain to be acute and the advance had materialized there was less comment. The cry was—"Get coal forward."

Through February and March when a considerable tonnage might have been taken on by retailers with good storage facilities the attitude of the Railroad Administration with respect to barge freights had a discouraging effect. On Dec. 28, 1918, at a time when in the open market freights had receded because of surplus bottoms the Government representatives advanced rates to points east of Newburyport from New York on railroad-owned transportation 30c., making the new rate to Portland \$2.10. The "open" rate to Boston was \$1.25 to \$1.35. The result was that the railroad-owned barges swung at anchor and were not used at all except for emergencies. In consequence collieries were shut down for from three to four days a week, when, had a different policy been followed, some of the con-

RECEIPTS OF ANTHRACITE COAL BY RAIL AT BOSTON

	1918	1919
January.....	33,453	22,516
February.....	23,188	16,483
March.....	42,526	11,622
April.....	23,256	16,103
May.....	20,482	26,017
June.....	15,527	33,994
July.....	33,420	23,861
August.....	28,581	14,628
September.....	26,259	17,918
October.....	29,348	24,845
November.....	17,630	26,933
December.....	20,740	22,561
Total.....	314,410	257,841
TOTAL		
1917.....	217,408	1915..... 192,442
1916.....	292,599	1914..... 192,426

BITUMINOUS MOVEMENT ALL-RAIL THROUGH NEW ENGLAND GATEWAYS

	Number of Cars,	
	1918	1919
January.....		
February.....		
March.....		
April.....	13,886	7,665
May.....		8,737
June.....		9,989
July.....		11,997
August.....	16,045	11,243
September.....	12,461	15,690
October.....	9,640	15,415
November.....	8,582	5,657
December.....	6,999	3,882
Average for 5 months, Aug. 1—Dec. 31.....	10.745	10.377
Or, in gross tons, av. 45 gross tons to a car.....	483,525 gross tons	499,965 gross tons

gestion which followed later in the season might easily have been avoided. This was another comment on Government operation.

On April 5, just at a time when the trade was beginning to despair of an equitable decision, the producing companies forced a reduction in the Boston rate from \$1.80 to \$1.25; the Portland rate, from \$2.10 to \$1.35, and the Providence rate, to \$1.15 from \$1.75. The effect was immediate; orders poured in, although water shipments started very slowly. The mines were once more on full time, but with the heavy movement all-rail it took a fortnight to get supplies running in volume to the piers. In addition, April deliveries were far behind normal, thereby imposing a handicap on shipments later in the season.

Another long-awaited move was made on May 1 when the Reading fleet resumed operation from Philadelphia, and the trade now had good reason to feel that at last things were in shape for an effective and equitable distribution. The whole area using anthracite, however, made insistent demand at the same time and instead of making the customary heavy spring shipments East, the pressure on producers was so strong that they could only spread the output in such a way as would meet with least criticism. Shipments noticeably slowed up in New England as there was a shortage of the egg size for which there is the strongest spring demand.

An ominous feature of the early spring trade was the summary announcement that 750,000 tons of locomotive fuel would have to be carried in the same Reading barges so much relied upon for the movement of anthracite. Had the order from Washington been carried out there would have been a howl from this whole section. At the time there were eighty to ninety Shipping Board steamers lying idle, and these could just as well have been used then for carrying railroad fuel, as they were later on. Reading barges were cheaper, and in part as a result of this policy the public dependent upon this fleet for anthracite was obliged to pay the Shipping Board rate on steamers in order to get the domestic sizes in sufficient volume.

Demand continued unabated through summer and fall. Applications filed in the cities were beyond all precedent. Thanks to ample stocks carried over, there were dealers who delivered in April one-fifth to one-sixth of their normal tonnage for the year, and yet most rehandlers at water points got during the same month barely 5 per cent of their yearly requirements. Smaller New York shippers, growing restive under excessive car service and delays at the loading piers were naturally inclined to favor the all-rail route and more than a few retail dealers with expensive wharf properties suffered from this situation and saw only too frequently barges carrying "independent" coal.

In July the situation grew even more tense. Premiums were advanced from \$1.00 to \$1.25, and later still they climbed to \$1.75, but the output let down generally around the holiday, and it was usual for bottoms to wait from ten days to two weeks for cargo. Reading barges scheduled to load anthracite were frequently turned over to bituminous shippers, and dealers began to take pea coal, in almost a state of desperation.

The propaganda of bituminous operators also had its bearing, for to the public eye coal is coal, and in display advertisements the word "bituminous" left out, gave the widespread impression that cars and men were idle because of lack of orders for anthracite.

In August there came a new blow because the Railroad Administration could not see the way clear to pay marine workers the same scale that the Shipping Board had agreed to pay in July. The result was a full 30-day suspension of the movement of railroad-owned barges. Two tows got away on Aug. 5 from Philadelphia, but they were the only sailings for a full month. It was well the public at the time did not realize how small

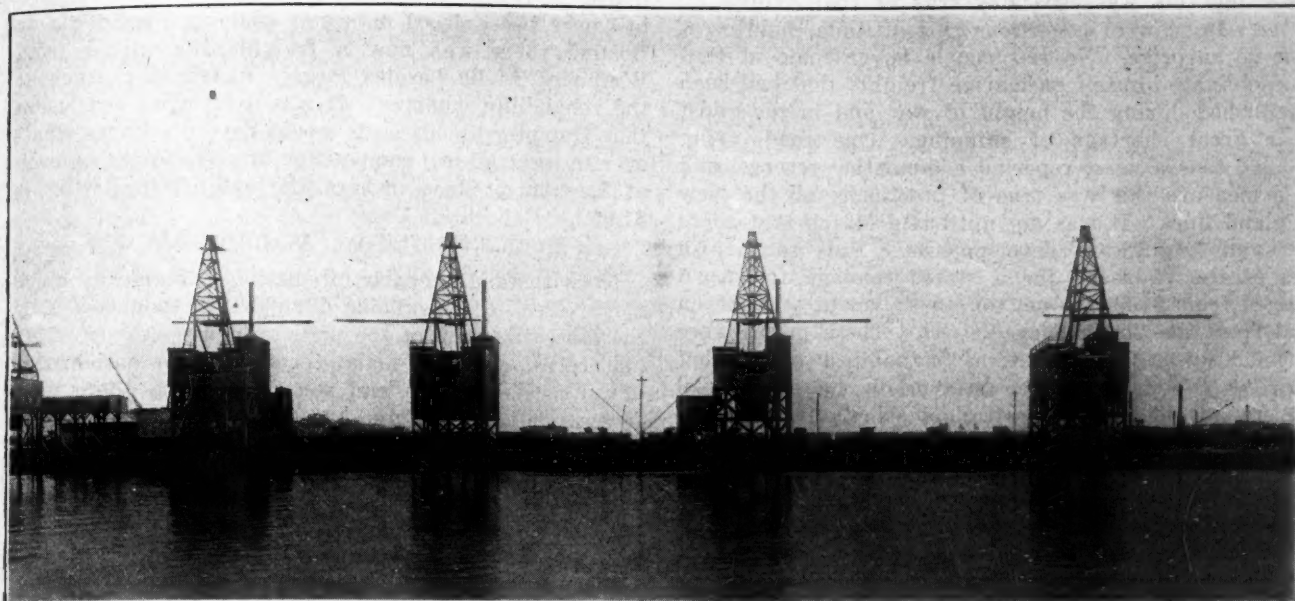
RECEIPTS OF GROSS TONS OF ANTHRACITE COAL BY SEA AT BOSTON

	Philadelphia		New York		Total	
	1918	1919	1918	1919	1918	1919
January.....	10,122	2,702	20,600	77,787	30,722	80,489
February.....	21,754		24,082	39,889	45,836	39,889
March.....	68,966		39,349	20,820	108,315	20,820
April.....	34,132	4,923	66,923	50,704	101,055	55,627
May.....	41,111	26,668	99,860	96,370	140,971	123,038
June.....	28,644	29,760	104,290	81,938	132,934	111,698
July.....	31,934	42,894	101,943	74,238	133,877	117,132
August.....	46,411	5,973	79,776	80,752	126,187	86,725
September.....	4,825	29,479	106,064	84,036	110,889	113,515
October.....	5,569	10,413	81,502	66,964	87,071	77,377
November.....	2,448	6,525	72,829	94,495	75,277	101,020
December.....	5,200	28,085*	63,833	71,423*	69,033	99,508*
Total.....	301,116	187,422	861,051	839,416	1,162,167	1,026,838
* Not complete.						
TOTAL						
1917.....	473,853		914,806		1,388,660	
1916.....	524,220		956,676		1,480,896	
1915.....	548,689		960,331		1,509,960	
1914.....	624,798		1,094,241		1,719,099	
1913.....	582,183		1,094,128		1,676,311	
1912.....	579,778		1,054,378		1,554,156	

were stocks at this end. At length, on Sept. 3, a settlement was made, on the Shipping Board basis, as might have been foreseen, and for a month fleet movement proceeded with reasonable smoothness. At the end of September a dispute over wages of marine engineers again paralyzed railroad-owned transportation, this time for sixty days. The difference was adjusted late in November, and during the balance of the year the barges moved with a certain regularity.

For the most part, buyers were unresponsive in 1919 to steam sizes. Buckwheat moved more easily than either rice or barley, and not even drastic cuts in prices of the latter could induce any comprehensive sales until December, when the bituminous wage trouble took an acute turn. The flurry lasted but a week, however, although some considerable tonnage of pea was moved as well as junior sizes.

It is a matter of satisfaction that the cost of anthracite is relatively so little higher than at the close of 1918. Shippers with established connections enjoyed a favorable year, and in spite of all the public was finally served. Coal enough cannot be mined in a single month to provide everybody with a year's supply. If in 1920 we can be permitted the use of facilities we already have the problem of distribution will be reasonably simple. The trade looks forward to March 1 with a certain wistfulness, for it is realized that under private management there will be less experimenting and more regard for service.



Trade Conditions in New England in 1919

BY G. G. WOLKINS

Boston, Mass.

THE SURFEIT with which New England was favored in war-time was easily the controlling factor in 1919. The trade was for the most part unhampered by the close supervision that characterized the year previous; but even with embargoes, marine strikes, and finally a widespread suspension of mining there was no active demand that lasted more than a fortnight. Reserves were ample. The re-birth of the Fuel Administration on Oct. 30 had little effect in New England, except for a momentary scare that had no real basis in fact.

Until the slightly accelerated buying in July the market dragged heavily, chiefly because of the glut forced upon us in the fall of 1918, and at no time during the 12 months was New England without at least a full 75 to 90 days' supply. During most of the year stocks averaged 40 to 60 days more. There was only the wholesale and needless withholding of deliveries during November-December to give the trade even the remote promise of a sustained active market. When cars were eventually released it was realized another 60 days would elapse before any current demand could be developed.

ALL-RAIL MOVEMENT HEAVILY INCREASED

The really outstanding feature was the heavily increased movement all-rail, followed necessarily by diminished tonnages coastwise. It worked havoc with the unpractised figuring of those outside the trade who aspired to be masters of distribution, but by the trade it was readily understood as the logical result of one or two simple factors. The Port of Providence, R. I., alone showed in eight months water receipts diminished by 800,000 tons. Half of this is accounted for by the increased fuel supply that the New Haven R.R. took all-rail for the region formerly served from Providence, allowance being made for decreased consumption.

Fuel oil in 1919 displaced approximately 200,000 tons

of 1918 coal in the vicinity of Providence, and a like tonnage is surely accounted for by shifts of commercial coal to the all-rail route. So it was throughout Tidewater New England, although oil distribution was centred within certain areas, and all-rail deliveries were general. There were the ships, a great surplus of them, and Shipping Board rates were reduced early in the year, but all-rail delivery was still much cheaper! Industries that had bought water coal uniformly for a generation were led in 1919 to buy all-rail exclusively. Hence there was a big increase through the five gateways, an aggregate tonnage never equalled in normal years.

BITUMINOUS TRADE WAS SLOW

Speaking broadly, the seaboard bituminous trade was slow and apathetic the whole season. Early, the weight of opinion was all against buying fuel that would not be required for several months, and there was too great anxiety on the part of steam-users to get clear of coal then on their dumps to warrant purchases until the market was more nearly established. Not only did the railroads cease buying, but actual consumption was materially less because of very much reduced traffic. Mild weather and the curtailment in manufacturing of all kinds also had their combined effect. The Government price began to be shaded for medium grades, but as the season advanced it grew increasingly clear there would be much more discrimination than had been the case since the first upward swing nearly four years ago. By the end of January it was evident sacrifices would gladly be made by many operators to get orders for current shipment. The possibility of labor tie-ups and light output were used as arguments, but the trade was as unresponsive as at any time in its history.

Railroad management, in particular, began to outline a distinct change of policy with regard to fuel purchase. Several long-term contracts were allowed to

lapse and this was especially true of coal coming by water. In view of conditions this attitude could occasion no surprise. No responsible buyer could at that time obligate himself on marine freights that had been established during the height of war and in the midst of a great shortage of shipping. One road, using 250,000 tons a year, reported a 6-months' reserve, and in a measure this was true of practically all the New England lines. It was not until late March that there were any significant developments. Bids to furnish one of the railroads for a stated tonnage for April ranged from \$1.60 per net ton on Fairmont to \$1.85 on coal from the Greensburg district. These prices were so much lower than quotations in the open market that they were bound to react unfavorably on commercial buyers. It had a peculiarly depressing effect because consumers in this territory are usually slow to realize the difference between the spot market and offerings for deferred or season delivery.

Toward the end of February it was seen that operators were themselves following a close-hauled policy. Those who produce high-grade coal were holding up to the one-time Government figure, even though they were only putting out one-fourth or one-fifth of their usual tonnage. To that extent, the all-rail situation grew slightly firmer during the spring and foreshadowed the better demand that developed late in June. Otherwise, the market just kept mulling on with light traffic and minimum consumption in almost every direction. Movement all-rail and by water was in very small volume and the trade grew reconciled to a meagre business.

At the very moment when New England industries were bringing pressure to bear on the Shipping Board the announcement was made, on March 6, that all rates were withdrawn and that individual ship-owners were free to make their own rates in the open market, and this went far to restore confidence.

There began to be an interest in quotations that had not been manifest since the summer of 1917, but naturally this renewal of inquiry was almost wholly confined to coal by the all-rail route. Coast-wise freights, however, settled down quite rapidly. By March 15 it was admitted that \$2 was all the traffic would bear, and at \$2 the Shipping Board rate remained, Hampton Roads to Boston, the remainder of the year.

LARGE CONTRACTS IN APRIL

It was clear by April 1 that the number of contracts already placed was large, and the aggregate tonnage considerable, but it was equally clear that most of them were for less than 10,000 tons and that with few exceptions they called for grades that have come to be regarded as specialties. Nothing else would account for the prices consumers agreed to pay. And it was also true that by far the greater number of these contract arrangements had been made in the same channels as in other years. Service during 1917 and 1918 was often a consideration in favoring the customary sources of supply, but there still remained a very large tonnage to be placed among heavy consumers whose ample stocks allowed them to wait 60 to 90 days more to test the market. The ensuing period, distinctly weaker in tone, justified this attitude, although the quality grades persisted on a relatively firm level.

Buyers now realized the heavy differential applying against rail-and-water deliveries to inland points. At

industrial centres like Fitchburg, Mass., where reliance had once been placed on water coal via Providence or Boston, there was now a freight rate inland from Boston of \$1.40, besides largely increased charges at the rehandling wharves. It was a foregone conclusion that Hampton Roads coals would have no chance whatever to meet all-rail competition at such points, or even at Lawrence, Mass., where the rate from Boston is \$1.05.

MUCH "FREE" COAL AVAILABLE IN 1919

Notwithstanding early predictions, there was much more "free" coal available during 1919 than is usually the case. Because of the uncertain prospect, operators had refrained from making contracts in anticipation of an active market and for that reason there were fewer contracts on file. In other words, output by September had caught up with the demand, and at least until cold weather it was clear there would be no spurt to buying in this territory. Through September and October production was way beyond expectation and had it not been for the strike prospect Nov. 1 there would have been great difficulty placing coal.

By Oct. 15 the wage discussion had induced a pronounced lift in prices for shipment all-rail. The more conservative operators were disinclined to ask much if anything over the yearly contract basis on the ground that "profiteering" would not put them in a favorable light with mine workers who were agitating increased pay. The market here was much restricted, and yet prices on certain grades advanced sharply. Sales were rumored at \$4 and up, on ordinary grades, but there was no support to this and when prices were again fixed on Oct. 30 there was no real change in the New England market. The fact was that buyers here were getting their coal on a basis that approximated the fixed price and notwithstanding the heavy curtailment because of the strike no special anxiety was observed.

During November and December the steam trade practically marked time. The few applications made for emergency supplies were from small consumers who were beginning to worry over the possible loss of coal they had in transit, and the only visible panic was among gentlemen who were suddenly called from other pursuits to refunction as fuel supervisors.

So effective was railroad control of distribution during November and December that there were actually three days, Dec. 1, 12, and 13, when not a solitary car of bituminous reached the New England gateways. For several days at a time not a cargo loaded for New England at any of the Atlantic ports. The tie-up was complete, while coal was rushed to the Central States to make up for deficient production there. The average receipts for the whole of December all-rail were 129 cars, but there was no distress. Eight thousand cars were held by the railroad authorities, either in transit or at destination.

FINE HOPES FOR 1920

For 1920 the trade attitude is hopeful. Export business remains alluring; wage increases and greater railroad income are foreshadowed, the possibilities of the large amount of shipping built or acquired by the Government are freely discussed, but the consensus is that coal factors will continue doing business as usual. The coming year is hailed with satisfaction by all those interested since it is believed that all signs point to an extremely active season in industry and consequently in the coal trade.

New York Coal Trade in 1919

BY ROBERT W. MORRIS
New York City

THE anthracite trade passed through the year 1919 satisfactorily, although in the majority of the twelve months there was a heavy demand for the domestic coals and not sufficient supplies to meet it. This heavy demand was due in part to an educational campaign inaugurated by the trade itself to induce consumers to put in their winter fuel early and "avoid the rush" during the fall and winter. The public saw an opportunity to save money by having its winter supply of coal stored away as early as possible, thereby saving 10c per month on each ton of coal.

The first three months of the year were inactive, for there was very little buying, the dealers having carried over from the closing months of the previous year good-sized stocks of coal. The business transacted in January was in direct contrast with that of the previous January when the shortage was acute and the weather extremely cold. Instead of a rush of orders and an urgent demand for deliveries, the trade was easy and many orders already placed for so-called "independent" product were cancelled. It was hard to move supplies and boats loaded with stove and chestnut were hard to dispose of during the first month of the year.

Gradually the war-time restrictions of the Fuel Administration were removed and it was hoped that when the ban would be lifted on Feb. 1 trade would pick up. But even when the rules were withdrawn there was no response, and the market was not stimulated. Can-

cellation of orders continued and the supply of steam sizes became so large that it was necessary to make concessions to move them.

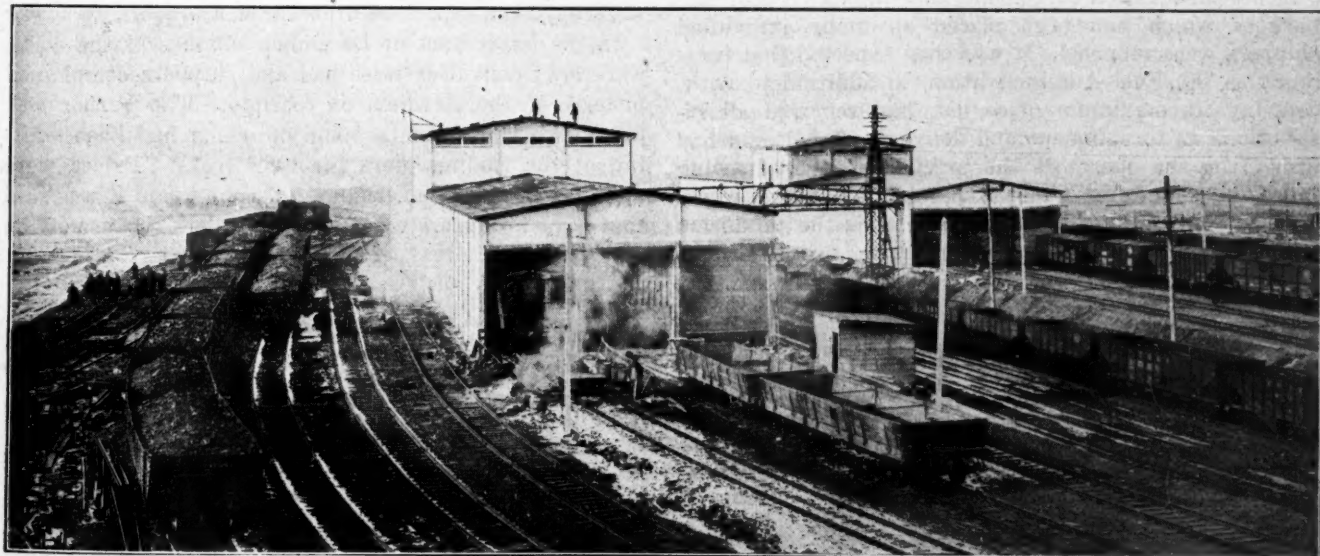
With stocks of all sizes on hand and no desire on the part of the public to buy except for actual needs mining was reduced to about half time, which program was generally followed until the end of March. A comparatively few weeks later both producers and shippers had sufficient orders booked to take their supply for several weeks ahead and some middle houses began to refuse new orders. Instead of the lull that usually prevailed in the summer months the entire trade was kept busy by the demand made upon it. There was a constant call for egg, stove and chestnut coals and at times the retail dealers had scarcely enough of the commodity in

their yards to keep their employees engaged. Early in the fall it was felt that all danger of a coal shortage had passed, as the situation had become easier and the demand had slackened. Wholesale houses reported their orders pretty well in hand and the retailers were catching up with the call for the various sizes. Independent coal which since early in the coal year had been quoted at 75c. higher than the regular company circular, and in some instances higher than that, was now beginning to feel the effects of the situation, and

buyers were not inclined to pay more than 50c and sometimes less. The situation in September was much the same as it was in the corresponding month of the pre-



DUMPERS OF THE CENTRAL R.R. OF NEW JERSEY
New Coal Pier at Jersey City—Capacity 6,000,000 Tons Annually



THAWING SHED OF THE CENTRAL R.R. OF NEW JERSEY, NEW COAL PIER NO. 18 AT JERSEY CITY

vious year, for as a result of the heavy summer business, there was comparatively no new business. In October chestnut coal was becoming scarcer because of the heavy demand made upon the peddler trade, which usually consists of one- and two-ton lots, and for the first time in months some middle houses had to scurry around to secure sufficient tonnage of this size to meet the demands made upon it. But it was not until the latter part of November and the first part of December that the trade again felt the necessity of larger shipments to meet the increased demand. This was due in most part to a brief spell of cold weather which eclipsed, for that time of the year, temperature records for New York City.

BITUMINOUS

The year 1919 was one of unrest and uncertainty for the bituminous trade here. It opened with the Fuel Administration in control and its prices prevailing, but the situation was such that these prices were hardly obtainable unless the coal offered for sale was of the highest grade. There was a lack of demand and the mines were being operated on a reduced schedule.

This harbor was in the throes of a marine strike which continued to be a menace to the trade until early fall. Consumers bought carefully during the first month of the year because of the reports that the government would relinquish its supervision of the industry, and that they would then see a drop in prices.

On Feb. 1 the Fuel Administration did withdraw its supervision and there was a better feeling in the market. Supplies were low on account of the holiday season which had recently passed and the slow movement of coal from the mines. Inducements to buy failed to create a market, but after a few weeks had passed manufacturers who had drawn heavily upon their reserve stocks while waiting for the Fuel Administration to pass out of existence, came into the market, thus causing a gradual improvement. Meantime shipments from the mines had become steadier and because of slow buying here and along the line, the local piers became congested with coal. There were many loaded boats hereabouts, but with operators standing firm behind their quotations and buyers just as firm in holding out for bargains, their number was not reduced as quickly as was desired.

Conditions improved considerably in March and embargoes which had been placed on many individual shippers were removed. It was then expected that inasmuch as the Fuel Administration, in addition to withdrawing its maximum price list, had removed all restrictions as to shipment and delivery of coal, and had also given the operators the privilege of withdrawing from the Tidewater Coal Exchange, that many would resign from that organization, and that the producers

would dispose of their coals separately. But such was not the case, as an exceedingly small number of operators withdrew from the Exchange.

Deliveries in the near-by waterways were again interrupted in March by a renewed strike of the boatmen and the situation became such that the government saw that fuel was delivered to public utility corporations if needed. In one instance the city was in danger of being without transportation facilities, as the supply of coal had become so low. Harbor deliveries did not improve until well into the next month, when the private boat owners made a settlement with their employees. This was followed a few days later by a complete settlement and operations in the harbor became normal within a few days.

Early in April inquiries for coal showed an improvement and consumers began to look around for contracts prices for the following year, but the operators were not anxious about tying up too large a portion of their output, and care was used in signing up. In May there was a slight reduction in quotations for tidewater shipments, especially for the poorer grades of coal, but the operators appeared to stand firm in maintaining prices for the better grades.

With another truce in the harbor situation and the belief that the difficulties had been permanently settled there was a flurry of demand in August and some heavy supplies were laid away. Production also increased and there was an urgent call for Pennsylvania coals in Canada. It was about this time of the year that the mine workers began to display their restlessness and rumors were current that they might stop work unless an increase in wages and other concessions desired were forthcoming.

Demand soon slowed down while production improved and again there was more than enough coal here to meet all requirements. Supplies in storage were such that buyers discriminated as to the grades to be furnished them and they would take nothing but the best available. Then came the strike of the steel workers, but which did not affect the local situation to any great extent. Buying again picked up when the Fuel Administration again resumed control of the industry on Oct. 30 in anticipation of the beginning of the coal strike. The work of distributing the coal was undertaken by the Railroad Administration, who remained in charge of this work until the men were ordered back to work.

In the latter part of December supplies at the docks were low; deliveries were bad and shippers complained bitterly of the slowness of receipts. The harbor was filled with empty boats, some of which had been waiting at the loading piers for two weeks. Prices were maintained at the government maximum and it was said that some producers were refusing orders because of the

NEW YORK COAL AND COKE EXPORTS IN 1919

	Anthracite				Bituminous				Coke			
	1918	1919	1918	1919	1918	1919	1918	1919	1918	1919	1918	1919
	Weight Tons	Value Dollars	Weight Tons	Value Dollars	Weight Tons	Value Dollars	Weight Tons	Value Dollars	Weight Tons	Value Dollars	Weight Tons	Value Dollars
January.....	490	4,223	10,367	84,275	530	3,435	3,168	25,108	1,599	19,582	570	16,091
February.....	1,184	8,177	615	6,190	2,157	19,348	3,561	36,581	44	1,253	1,586	22,608
March.....	2,607	20,050	904	9,350	4,508	27,190	140	1,732	956	14,481	390	5,582
April.....	7,107	49,785	1,695	13,368	3,081	21,304	1,001	6,328	633	16,757	468	7,711
May.....	4,444	30,158	3,601	29,402	8,117	58,118	540	4,517	2,153	30,868	626	11,184
June.....	6,761	43,991	10,482	88,292	6,807	50,751	25	250	1,605	20,562	2,614	42,814
July.....	9,340	62,824	4,983	40,990	7,440	52,402	2,847	17,721	117	3,220	283	6,870
August.....	10,460	72,264	4,703	40,871	10,149	72,612	1,626	11,900	333	9,032	300	4,664
September.....	13,602	96,204	6,249	56,325	3,449	25,444	6,742	38,929	106	3,294	200	5,167
October.....	11,656	80,688	6,929	62,226	1,045	7,884	3,959	27,240	203	3,996	5,265	39,143
November.....	9,182	71,233	15,585	148,636	221	2,205	2,077	14,813	494	14,214	1,585	19,353
December.....	4,614	44,490	.....	.....	1,213	8,676	.....	.....	2,694	36,854	.....	.....
Total.....	82,447	584,087	66,113	579,925	48,717	349,369	25,686	185,119	10,937	174,114	13,887	181,187

lack of miners to produce the coal and the bad car-supply. It was predicted, however, that with the miners returning to work in larger numbers soon after the New Year the situation would soon become normal.

During the first eleven months of 1919 there were exported through the port of New York to foreign countries 66,113 tons of anthracite coal; 25,686 tons of bituminous, and 13,887 tons of coke. This is a decrease from the shipments of anthracite and bituminous in

COAL DUMPINGS AT NEW YORK IN 1919

	Anthracite (Tons)		Bituminous (Tons)	
	1918	1919	1918	1919
January.....	24,064	23,756	19,277	23,769
February.....	22,876	15,137	17,268	23,668
March.....	31,224	6,439	23,810	11,516
April.....	28,548	19,448	23,084	20,708
May.....	29,835	26,138	28,104	25,271
June.....	30,695	23,970	30,240	23,773
July.....	32,228	25,542	31,155	24,555
August.....	32,417	26,978	30,157	25,480
September.....	28,119	22,433	30,328	23,367
October.....	27,190	24,886	28,503	24,571
November.....	21,834	23,331	25,479	16,679
December.....	26,261	22,660	25,169	13,829
Total.....	335,291	260,718	312,574	257,166

1918, but an increase in coke shipments. The average cost per ton for anthracite exported in 1919 shows an increase of \$1.75 over the previous year; of 3c for bituminous, during the same years, but a decrease in the average cost of coke of \$2.88.

Wholesale Coal Trade Association of New York

BY CHARLES S. ALLEN
New York City

THE matter of oil competition interested the members of the Wholesale Coal Trade Association and the trade generally during the past year, and it has been found that many concerns have gone over to the use of oil without a careful and proper consideration of the change. This association was asked, by a committee formed to look after this subject, to take over this branch of work and wherever it has been able to find an opportunity to place the facts with respect to the use of coal before the contemplating user of oil, generally the result has been that the consumer has decided to stick to coal. Our first step was to engage a combustion engineer, who is the head of the engineering department of one of the great universities in the East. He has taken over this matter for us and will go to the bottom of the whole subject and give us his report.

COAL EXCHANGE BUREAU EASED SITUATION

The throwing upon the market of large quantities of coal early in the year following the general breakdown of business was largely mitigated in this locality by the Coal Exchange Bureau maintained by the association which enabled its members to buy and sell among themselves with a greater freedom than had ever been known before in the trade.

The action of the association in obtaining from the Railroad Administration a suspension of the payment of demurrage charges, up to and including May 31 of last year aggregating upward of half a million dollars, as a result of the harbor strike that existed for a few days in January, and then from March 4 to April 21, relieved the trade of an immense burden. Complaint

was filed with the Interstate Commerce Commission as to the reasonableness of the charges, and in July a hearing in the matter was held in this city, the presentation of the testimony and evidence occupying nine days. It is expected that the tentative report of the examiner who heard the testimony will be ready shortly. Following this, under the rules of the commission, the parties to the complaint, if they desire, have the privilege of filing exceptions to the report and making oral argument before a division of the commission, after which the commission's final decision will be handed down.

HINES DONS GARFIELD'S DISCARDED MANTLE

Much confusion and additional work has been thrust upon our members by the resumption of the functions of the Fuel Administration, especially as they have been carried out by its delegated authority, the Railroad Administration, and hundreds of thousands of dollars are now tied up in coal which had been taken by the latter, which the members have found it impossible to locate or to collect for, when they have been so fortunate as to locate it. I am of the opinion that if the coal trade had been permitted to function in a normal way during the last two months of the past year, much of the hardship which was suffered by the public would have been entirely obviated.

It is my belief that the coal trade as a whole is distinctly opposed to anything that even savors of profiteering. I think the tendency among dealers is always to treat their customers in the most considerate manner and my personal view in speaking on this subject—and I am only expressing my personal view—is that what is said of the people generally is true of the coal trade specifically, and that the people are best governed which are least governed.

British Labor and Coal Prices

With reference to a statement made by the secretary of the Miners' Federation of Great Britain that "Miners started cutting the coal at \$0.60 per ton and the consumer paid \$12.50 for it," a correspondent of the *Daily Telegraph* quotes the following official figures, showing how the London retail price of \$11.88 per ton is made up: (a) Pit price—labor, \$5.294; timber and stores \$0.864; other costs, \$0.40; royalties, \$0.15; owners' profits, \$0.31 total, \$7.02; (b) railway rate, \$1.02; (c) wagon hire, \$0.36; (d) distribution charges—loaders' wages, \$0.42; carmen's wages, \$0.44; other cartage charges, \$0.62; loss on small coal, etc., \$0.14; sacks, \$0.10; railway siding rents, demurrage, etc., \$0.02; salaries and establishment charges, \$0.84; profits, \$0.40; total, \$2.98. These separate items total \$11.88.

The figures given by the President of the Board of Trade, i.e., \$1,406,250,000, as the cost of raising 192,000,000 tons of coal in the year ended July 16, 1920, were accounted for as follows: Labor, \$1,051,250,000; timber and stores, \$172,500,000; other costs, \$65,000,000; royalties, \$30,000,000; owners' profits, \$62,500,000; compensation to owners for working mines which would not otherwise be worked, \$15,000,000; cost of Coal Mines Department, \$5,000,000; margin for emergencies, \$5,000,000. From these figures the cost of 192,000,000 tons of coal at the mines amounts to \$1,406,250,000 as noted; the cost per ton of coal would be \$7.32. The authority for these figures is Trade Commissioner Henry F. Grady, of London, Eng., in *Commerce Reports*.

Philadelphia Coal Trade in 1919

BY CORRESPONDENT

THE first "after the war" year in this district was epoch making in many respects. In the first place the winter from the beginning of January was one of the mildest known here for fifty years and as a result the coal business was very quiet all during the season. Of course many consumers had been heavily stocked during the previous summer, but in the ordinary current business, the anthracite trade was far below expectations.

With the continuance of mild weather into February the Fuel Administration finally relinquished all regulations on anthracite coal, and the first effect of this was a reduction in retail prices, which then ran about as follows: Egg, \$10.30; stove, \$10.55; nut, \$10.65, and pea, \$9.05. Due to the lack of demand from the retail trade the independents were obliged to remove their differential of 75c. a ton, but even then they had the utmost difficulty to market their production. As a matter of fact many of the mines in the region suspended operations at this time, there being as many as 17 collieries closed in a single week. A striking feature of the trade was the manner in which the pea coal business had slipped away from the retail trade. Heavy stocks of this size were carried, but the demand was extremely light, a large proportion of the former pea trade having shifted to stove and nut. At this time there were many rumors as to what the spring wholesale prices would be, there being a general feeling that there would not be the usual 50c. reduction.

MARCH PRICE SCHEDULE CONTINUES TILL MAY

The price rumors which had started in February culminated in actuality early in March, for on the thirteenth of that month there was issued a circular by the largest producer, dated March 10, stating that the present winter circular would continue in effect until May 1.

April opened with only a light demand for fuel, some seeming to consider that the price investigation by the state had led the people to believe that lower prices would prevail. A "Buy Early" campaign was started by the retail trade in May and the dealers used heavy space in the newspapers urging the consumers to lay in their winter fuel during the summer. Whether the flood of orders which followed was due to the campaign or to a sudden realization on the part of the public that it was wise to buy in the face of the rising prices each month, it is a fact that the dealers were soon swamped with orders. On the part of the producers they found it most difficult to meet the calls of the retailers on them for egg, stove and nut, although pea was still very quiet.

In June there was a tendency toward quietness in retail ordering, although no dealer was in need of business, as most of them then had more orders on their books than they could fill for the next three or four months, most of which had been taken at a fixed price. Some of them began to realize that they had made a mistake in doing this, especially those handling a fair proportion of independent coal.

In July most of the independent shippers advanced their prices 15c. above company circular, but even at

these prices they were shipping only a limited tonnage of the prepared sizes to this market. At this time the demand from outside markets, which during the war had suffered from lack of fuel, began so strong that heavy shipments were made in that direction at even greater advances in prices. All through August the demand for egg, stove and nut continued on the part of the retailers, and most of the larger companies were allotting shipments on the basis of the past year's experience, to the disgust of most dealers who maintained that this system made no allowance for natural increase in business.

BUYING GOOD IN SEPTEMBER

September opened with a cool spell, which immediately made people think more actively than ever of their coal piles. In this month the wholesale prices also reached their maximum. The individuals also took occasion at this time to increase their margin over the company prices, their differentials ranging from 25c. for the lowest up to 75c. It seemed more than likely that it was only the matter of a month until all independents would be asking the 75c. margin on all sizes except pea. There was not the least sign of decrease of activity in the trade during October, with the dealers' yards still bare of egg, stove and nut. They had now reached the point where they would not book further orders with the consumers at a fixed price, as they were not at all certain what they would have to pay for the fuel at the mines.

The outstanding feature of the November trade was the picking up in the demand for pea by the retail consumers, especially in the latter part of the month, coincident with the arrival of some cool weather. Yet the real demand continued to be for stove and nut, and only to a lesser degree for egg. This month there was a decided call for all the steam sizes, due to the strike in the bituminous region which began on Nov. 1.

December was a real winter month in the trade and early in the month with cold weather the dealers began to move heavy quantities of pea. With the coming of the new year all interests were beginning to wonder if another slump in the coal trade similar to last year during the winter months was not about due. The only thing to offset such a prediction was that so far in the month of December we had had more winter than during the entire season last year and that the consumption of coal was very heavy, which it was believed would be reflected in better ordering later in the season when consumers' stocks began to run down.

LIGHT BITUMINOUS DEMAND IN JANUARY

The year just closing is far from being a banner one for the soft coal interests. The season opened with only a light demand for fuel, for with the ending of the war in the previous November all the big consumers were loaded sky-high with fuel and buying fell off very materially. There was a strong demand for the better grades and shippers of this kind of fuel found little difficulty in making a market, but the lower grades were plentiful and coal was sold as low as \$2.85.

With February the price regulation was removed by the fuel authorities, but the demand was far from strong. Most producers endeavored to procure the Government price of \$2.95 for their output, maintaining that to take less would be to do business at a loss and they would fare better by closing down. There was at this time considerable interest being manifested in export business.

March still found the demand quiet, the real buying being confined to the best coals. There was more interest shown in contracts and some business was taken at this time at figures running from \$2.95 to \$3.50, although the operators were only willing to take a very limited tonnage.

The demand for fuel continued light through April and the producers of medium grade coals found it most difficult to find a market. This month many shippers sent in bids to the railroad administration covering their fuel requirements, but all tenders were rejected as being too high.

May displayed little change in the general situation, there being little tendency on the part of the consumer to stock fuel beyond their current needs, as they all had heavy stocks on the ground from the previous season. There was, however, an increase in the amount of contracting done, and some concerns began to make agreements for railway fuel.

Late in June there was a decided tendency on the part of consumers to take in coal, although this was confined chiefly to the best grades and the vendors of the ordinary fuels were still finding it hard going to move their production, sales being made as low as \$1.80 for pool fuel. The big users in particular began to display interest and the month closed with a strong trend to better conditions.

PRODUCTION IN JULY INCREASED 50 PER CENT

In July the operators were able to get their production up to about 50 per cent of maximum and the more active movement begun in the previous month displayed increased strength. On this account the shipping houses showed less tendency than ever to enter into contracts. On the spot market the high grade coals were running from \$3.05 to \$3.25, while ordinary fuel was bringing in the market from \$2.60 to \$2.80.

There was a distinct upward movement of prices in August, averaging about 20c. all around, all of which was due to a car shortage which began to develop in all regions. Buyers seemed quite anxious to get in additional supplies and all prices were closely approaching the \$3 mark, with quite a few beyond.

Good business was maintained in Sept. it being estimated that production was close to 70 per cent of maximum and this could have been increased if there had been sufficient cars to meet the demand. Later in the month an embargo was placed at tide and this threw a considerable volume of coal into the spot market, which had a tendency to depress prices.

With the tide embargo still on with the coming of October there was plenty of coal to be had for rail delivery and despite the threatened strike of the miners on Nov. 1 the local consumers refused to show any anxiety over the situation. With the arrival of the end of the month, however, the consumer woke up, until prices had moved up to \$3.50 and \$4, and finally shippers refused to accept any business at all.

With the coming of the strike on Nov. 1 there was

little coal to be had and most of the output was applied on contract business. Nevertheless this market was supplied quite well with fuel, especially the larger plants, who had stocked up during the summer. Conditions became so bad in other districts that the Fuel Administration was revived, its affairs being administered by the railroad officials, and coal was only allotted to the industries in accordance with the priorities established during the war. The old Government prices were also in effect, which for Pennsylvania coal was \$2.95 plus 15c. for commission when sold through brokerage houses.

The strike ended on Dec. 10, but this market had been so well taken care of that there was far from an extraordinary demand for coal. Later in the month, however, it became more difficult to procure fuel. At this time the trade stands in a most unsatisfactory condition and enters the new year with much uncertainty as to its ability to make the production of coal a profitable business. When the strike settlement was made with the miners, the Government stated that there was to be no increase to the consumer and the producers are still wondering where they will "get off."

Coal Industry's Part

George Otis Smith, in an address before the American Mining Congress, said: The advantages of regular employment accrue alike to labor and capital; it is the year's earnings that really count, whether it is the dollar or the man whose service we thus measure. Now, if we study the country's soft-coal business as a whole, we find a gratifying improvement during the war period in the average number of days of employment—from 195 days in 1914 to the top record of 249 days for 1918. But these averages for the country unfortunately include low figures for certain states, and usually for the same states year after year, a relation that deserves this comment: wherever the working year is shortest there dissatisfaction with the conditions of labor is keenest,—in other words where coal mines have not enough market to keep them running a long working year, there we find labor unrest.

Of course the relationship is not simple; cause and effect are mixed in this coincidence of short years, labor unrest and union strength, and it must be noted that mine owners as well as mine workers suffer from every interruption to the full opportunity for earning that comes only with continuous operation. The underlying cause of bad conditions in the coal industry is the seasonal fluctuation in demand, which has resulted in the country being overequipped with coal mines and coal miners.

For three months this last spring (1919) the coal mines of the country were operated, on an average, for only about 24 hours a week. From coast to coast the reason for lost time was "no market," something beyond the control of either operator or mine worker. Here, then, is the greatest branch of our mining industry vitally affected by a widespread malady, the remedy for which lies with the public alone. Arbitration-dictation, legislation cannot cure such deep-seated trouble. Laws cannot make coal mines operate when there is no outlet for their product, but education of the consuming public may accomplish much in bettering the conditions of demand, and we as consumers will do well to remember that the price of coal must be varied accordingly.

Baltimore Trade in the Year 1919

BY STAFF CORRESPONDENT

A PERIOD of wide differences as to demand, supply and prices, of unusual disturbances occurred during the past year, caused by labor troubles and government control which was by no means altogether bad, as there was much healthy trading, especially on export from this port. The first months of the year were marked by exceeding dullness following the shutting down or curtailment of numerous war plants in this territory; the midseason witnessed a revival both as to demand and price, with record loadings being recorded on foreign delivery dumpings, and the end of the season saw the business both in and out of a great miners' strike and government control.

The months of January and February were dull in the bituminous trade. The light demand following the first days of reconstruction after the Armistice was such that prices dropped below the government maximum in nearly all cases. Take the state of the market at the outset of February as an example—three-quarter-sized Fairmont coal had a government price of \$2.75 and went begging on the general market at \$2.40 f.o.b. mines. Freeport was likewise some 35c. below government figures, and the government priced \$2.95 Pennsylvania coals could be had at \$2.75. At this time the anthracite trade showed little activity, as it was then believed that spring would bring a break from the existing wholesale scale and consequently in retail prices.

In March and April the soft coal market dragged and was without added strength. The retail hard coal trade fixed its schedule to conform with the new wholesale prices which were to remain in the old war-time margin of profit. It was planned not to make monthly advances of 10c., but to jump to 25c. on July 1, and 25c. toward fall to cover the 50c. over-season wholesale move.

OPERATORS SWAMPED WITH ORDERS

May saw a continuation of the flat bituminous market, but the hard coal men received a record breaking line of early orders and complained much that they could not get through enough coal from mines to meet this. Other seasons had seen as high as 75,000 to 85,000 tons of hard coal received, but the receipts fell to less than 45,000 tons last May. In this month the export of soft coal began to pick up to a small degree. June brought a big spurt in the export business and one order alone was in the market for 3,000,000 tons for Italy, but with no takers. Prices began to stiffen in the domestic market as well.

The soft coal market grew tighter and tighter in July and prices for good coals mounted to \$3 and better, while the export movement reached more than 230,000 tons for the month. The retail hard coal price advance of 25c. in July was quietly received.

Three dollars and a half per ton of coal at the mines came with August, and local plants began to hustle to get in stores of coal before it went higher. The export movement mounted to 248,000 tons for the month. Another advance of 25c. per ton in retail hard coal prices to offset the growing charges for premiums on independent coals, often ranging around 75c. per ton, raised little protest in public circles.

The jam of coal at this port in September as a result

of an export trade that the piers could not handle promptly, and the rush to local plants of all-rail coals caused a series of embargoes. In this month sales of the best coals were recorded as high as \$3.75 and \$4 per ton and exports jumped to more than 326,000 tons. Anthracite dealers recorded still another price advance to take care of the last part of the wholesale over-summer rise.

The month of October was the last of the boom period, a vast quantity of coal having moved at good prices, and the exports from Baltimore reaching the remarkable figure of 460,000 tons. The story of the strike period starting the last of October; the ban on exports; the government seizures of coal which even to this writing have never been adjusted in payment to mines or shippers; the final adjustment after the coal trade had been badly upset, and the eleventh hour order of the Railroad Administration allowing a resumption of exports under permits on a 50 per cent basis of the October movement, are too fresh in mind to need review.

The total exports for the year of cargo coal from Baltimore—a ten-month period ending Oct. 31—showed 1,722,839 tons loaded here. This meant that the export movement, had it not been interrupted by the strike, would have vastly surpassed the banner year of 1915, when a total of 1,901,466 tons was loaded for foreign delivery from this port.

With government control about over, with the export business on the point of renewal, and with the business of Baltimore booming, the coal trade here is looking forward to a very prosperous 1920, unless the government fails to find an adequate solution to the labor troubles now being threshed out in Washington. The fact that a number of plants have substituted oil burners for coal because of the uncertainty of coal supply and the mounting prices is offset by the fact that industry here is demanding more fuel.

Buffalo Coal Trade in 1919

BY JOHN W. CHAMBERLAIN
Buffalo, N. Y.

THE Buffalo coal trade has had a very trying year, as has been the case throughout the entire country, but 1920 promises well, as all labor troubles will soon be overcome.

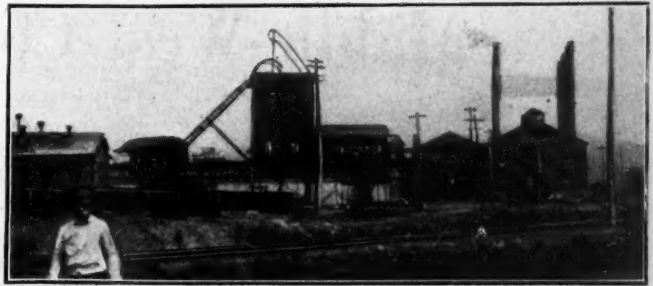
Since the Government gave up control of the trade the jobber has continued on the small margin allowed and had made a moderate amount of money as a rule until the miners' strike in November, which practically put a stop to the business. He had not been idle in the meantime and if he has sold little coal during the last two months of the year it was because he had so impressed his views to the consumer. There was of course profit in this business, but it ought to have been much more, for without the advice, not to say the orders of the jobbers, the consumer would have neglected buying and would have been without a supply when the strike began.

The anthracite trade has been continued much as usual. The shortage in the city trade has been much of the same character as in recent seasons, but the effort to obtain coal faster than it was provided has not been quite so determined as in some seasons. Last winter was so mild that a prediction of another winter of the same sort, quite commonly made by the weather

sharps, no doubt held up buying considerably. As soon as the lakes closed the companies began to furnish coal as fast as it could be handled and in some cases a premium of \$3 a ton has been paid.

The most disconcerting part of the anthracite trade was from the reports that the mining was millions of tons below the average, so the consumer reasoned that somebody was sure to get left. Still the anthracite shipper has always maintained that there was coal enough and it is now being proved that he was right.

The lake trade has been well taken care of, as the shipment of 4,150,118 tons from here to the upper lakes shows, for it is much above the average of the past two seasons. The shipment in 1918 was 3,594,803 tons and in 1917 it was 4,237,904 tons. The anthracite shipped by water now practically all goes to Lake Superior and Lake Michigan ports. It is said to have been taken by dealers or consumers about as fast as it arrived there, but if some of them do not have coal



LUCERNE MINE, LUCERNEMINES, INDIANA COUNTY, ILL.
Where 300 men are employed producing about 1,000 tons a day.
Much of this coal is sent to Buffalo

left over it will not come up to general calculations. The natural gas supply in Buffalo, which used to supply about as many private consumers as did anthracite, has so run down that coal is again the rule, except for small fires, in grates and kitchens.

Milwaukee Coal Trade in 1919

BY HERMAN BLEYER
Milwaukee, Wis.

THE passing of the year 1919 aroused no regret in Milwaukee coal circles, as it had been a period of worry and anxiety from start to finish, in fact, it is acknowledged to have been the worst season in twenty years, not excepting the harrowing war-time experience. Business was very dull at the beginning of the year, because of mild weather conditions, but later on an unusual demand developed which dealers found hard to satisfy and at the same time keep pace with the requirements of existing contracts, an unusual number of manufacturing establishments and apartment buildings having made early contracts covering their fuel needs. Strikes in various parts of the country contributed to the uncertainties of the business, and at the close of the season the great miners' strike and the re-establishment of the Fuel Administration put the finishing touch to the potpourri of trials and tribulations of the coal man.

A large portion of Milwaukee's fuel supply was taken over by the government and shipped to different points for railway uses. In this way some small dealers lost supplies for which they had been waiting for months. There was never a comfortable supply of cars at any time during the year, and naturally when periods of rush developed, the situation in this respect became

acute and this seriously hampered the outward flow of coal to interior points. Anthracite was subjected to the usual advance of 10c. per month during the summer months and there were two or three small advances in bituminous grades, but taking it as a whole the public seemed well satisfied with the figures maintained.

The movement of coal by lake was steady and satisfactory. The tonnage of anthracite shipped was the largest Milwaukee has received since 1915. Receipts of soft coal, however, fell short of last year's record. Five hundred cargoes of coal in all entered the port during the season of navigation. The shortage in the volume of bituminous coal received was made up by the tonnage carried over from the previous year. With reasonably normal weather conditions there should be a sufficient supply of coal on hand in Milwaukee to tide consumers over until the opening of navigation in 1920.

Navigation is now closed. One cargo of nearly 10,000 tons of anthracite is still enroute and will not reach here until spring, the steamer having been compelled to winter in the Straits of Mackinac. The rush of large carriers to swell Milwaukee's coal supply on account of the drafts made upon it by the government, brought a large number of heavy carriers to the port at the close of the season.

RECEIPTS OF COAL AT MILWAUKEE DURING THE YEAR 1919

Month	Cargo Vessels		Car-Ferry		Total Anthracite and Bituminous Tons	Rail		Grand Total Incl. Lake and Rail Tons
	Anthracite Tons	Bituminous Tons	Anthracite Tons	Bituminous Tons		Anthracite Tons	Bituminous Tons	
January.....	.....	.....	12,830	15,204	28,034	42	58,848	86,924
February.....	.....	.....	10,930	13,280	24,210	105	46,852	71,167
March.....	.....	.....	9,303	4,741	14,044	.....	47,730	61,774
April.....	.....	92,652	12,521	12,619	177,327	.....	40,729	218,056
May.....	102,498	440,018	8,016	11,010	561,542	.....	40,176	601,718
June.....	101,539	615,882	13,755	24,896	756,072	613	43,132	799,817
July.....	133,128	455,374	5,222	19,227	612,951	1,382	41,659	653,992
August.....	147,036	363,986	2,753	23,031	536,806	45	37,259	574,110
September.....	122,096	394,611	.....	.....	516,707	.....	43,158	559,865
October.....	91,587	357,851	2,796	34,921	487,155	41	50,792	537,988
November.....	127,007	176,678	4,104	22,913	330,702	.....	42,107	372,809
December.....	81,326	114,484	*8,654	*15,733	220,197	*100	*40,000	260,297
Total, 1919.....	965,752	3,011,536	90,884	197,575	4,265,747	2,328	532,442	4,800,517
Total, 1918.....	839,092	3,446,061	61,109	113,054	4,459,316	1,245	727,606	5,188,167
Increase.....	127,760	.....	29,775	84,521	.....	1,183	.....	.....
Decrease.....	.....	434,525	.....	.....	193,569	.....	195,164	387,650

* Estimate.

Middle-West Coal Trade in 1919

BY HAVEN A. REQUA
Chicago, Ill.

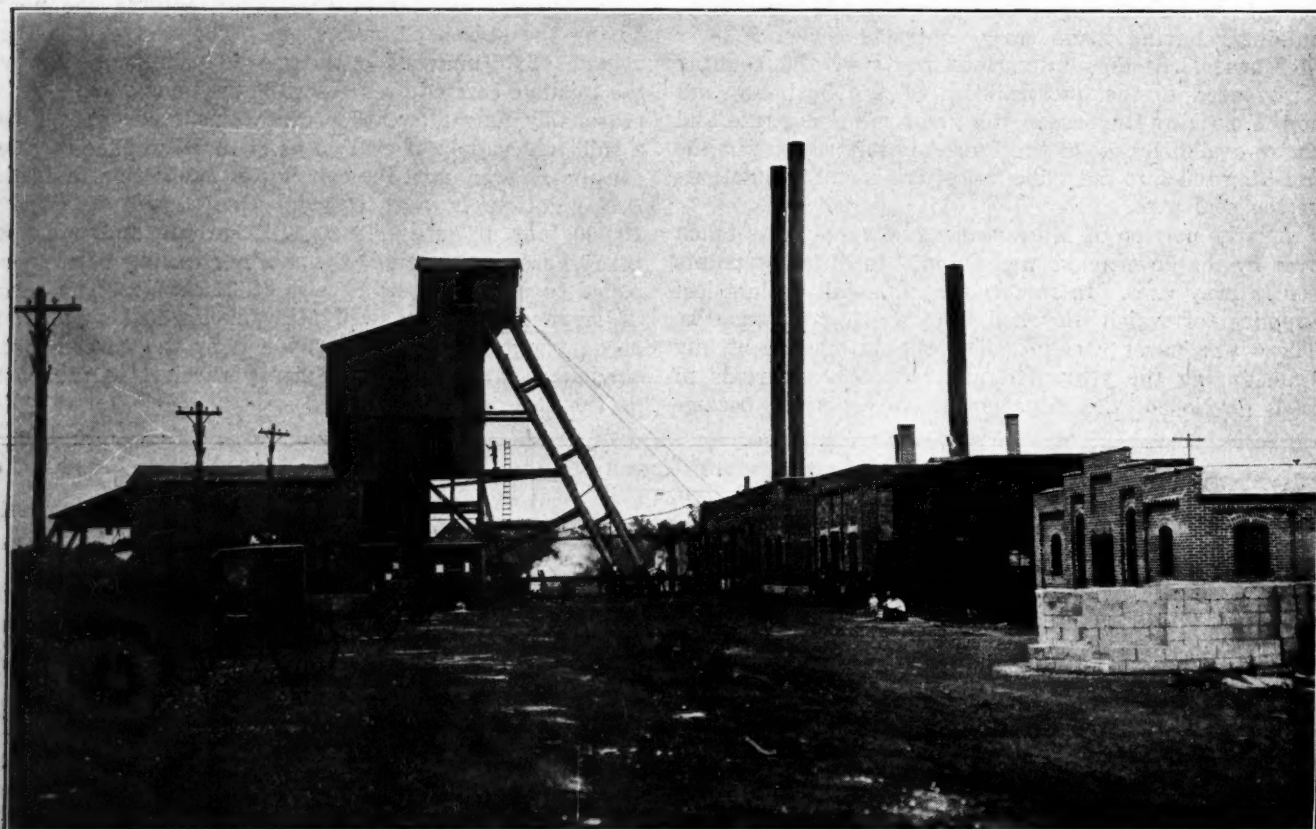
FOR the coal man, the year 1919 certainly had its ups and downs. And one operator suggests that a proper title of an article on trade conditions in the Middle West, during the past year, ought to be "Bumping the Bumps and Shooting the Shoots, or the Harrowing Adventures of the Coal Industry." As a matter of fact, the suggestion of our operator friend is good, because a study of the market for the last yearly period shows that it was very erratic. The demand was practically never normal, either there being no demand at all, or more orders booked than the operator could handle. The year was a disappointment to the trade because it was expected that 1919 would prove a banner year for the entire coal industry.

When one glances over the events which took place in 1919, it is found that the year automatically divides itself into three periods, each consisting of about four months. Each period has one or two outstanding features, which in themselves have proved of great importance to the industry in this part of the country.

The first period was from January to the last of April. In order to get a comprehensive idea as to what took place during this period, it is necessary to review the last few months of 1918, when the demand for coal dropped like a plummet, chiefly on account of the signing of the Armistice, and on account of the fact that nearly all of the retail coal dealers, as well as the various industries in the country had substantial supplies of coal on hand. After the armistice was signed in November, war contracts were cancelled

right and left, thus releasing practically millions of tons, a market for which had to be found elsewhere. The country could not absorb this suddenly released tonnage, and as a natural result the market broke. The retail dealers, in the meantime, had their hands in the game, but played an unconscious part. Owing to the efforts of the Fuel Administration a tremendously large tonnage of domestic coal had been sold and shipped during the summer months, consequently every household and every dealer had a comfortable supply on hand when the armistice was signed. Added to this the winter proved remarkably mild.

When January 1919 came around, there was practically no activity in the coal market because, as I have said, the public had plenty of coal on hand. Soon some of the operators, with weak selling organizations, began disposing of their coal at prices below those fixed by the Fuel Administration, so very soon the market on both steam and the domestic coals was completely demoralized. About the middle of February, when conditions were at their worst, more confusion was added to the situation by the withdrawal of nearly all of the rules and regulations of the Fuel Administration. This withdrawal, of what practically amounted to Government control of the industry, was the cause of much comment, as the general opinion appeared to be that the Government ought to have used its great influence at this time to help the operators maintain Government prices, if for no other reason, on account of the splendid work and co-operation on the part of



MINE 9 OF THE MADISON COAL CORPORATION AT DEWMAINE, WILLIAMSON COUNTY, ILL.

the operators and mine workers during the war. The mine workers suffered just as much as the operators by being thrown out of work on account of the lack of demand. As a matter of fact, the operators have very little reason to look upon the present Fuel Administration at Washington, except with suspicion.

To return to the market conditions during the remaining part of the first period, it was found that after February, until the end of April, conditions in the coal market were lamentable, as prices steadily went downward until coal was selling in some cases as much as \$1 below the Government prices. Many mines closed, and many mine workers were thrown out of work because there was either too much coal in the country, or because the public was not interested.

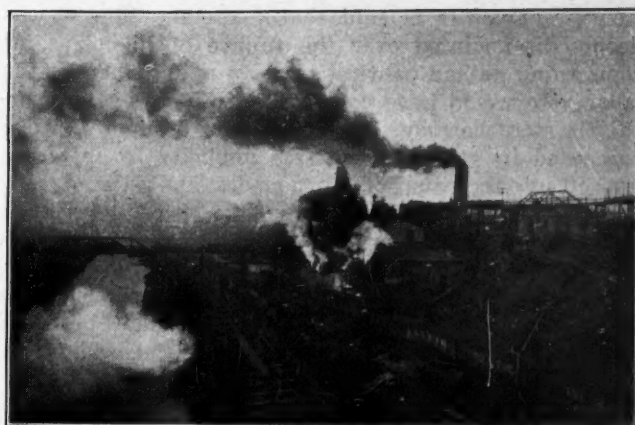
WHEN EVERYONE WAITED FOR COAL ORDERS

The next period, from May 1 until the end of August, is particularly remembered because of the general stagnation of the coal market, during the earlier part of the period; the gradual recovery of the market during the latter part of July and August; and chiefly, and finally remembered, on account of the efforts of the United States Railroad Administration, to beat down prices in order to buy its contract coal cheap. This last item referred to is what finally destroyed what little confidence the operators and jobbers had left.

A rough analysis of the situation appears to disclose the fact that the railroads, under Government ownership, were running seriously behind in their finances, and something had to be done. By purchasing cheap coal for the railroads, the authorities of the administration saw an opportunity to recover their losses and perhaps save their political reputations. In order to demoralize the coal market, these gentlemen at Washington determined not to buy their fuel at the prices set by the Government, which every one conceded perfectly fair, but deliberately kept their roads out of the contract market just as long as they dared. The coal market, deprived of its largest and perhaps most important customer, went completely to pieces, and eventually the railroads were enabled to purchase their contract coal at prices considerably below the old Government figures.

By their inconsiderate treatment of the coal operators, the authorities at Washington lost a great opportunity to gain the confidence of all the industries in this country. Instead of stepping in, earlier in the year, and buying coal at fair prices—these prices set by Government agencies—and therefore saving the coal industry from serious losses, these gentlemen sat back and did not buy for their railroads until they dared delay no longer. Besides causing severe losses to the operators, this action on the part of the Railroad Administration was responsible for much dissatisfaction which arose among the miners who were thrown out of work, when the mines had to remain idle.

In July there was some slight improvement in the coal market, although mostly on the prepared sizes for the domestic trade. Steam sizes were still very inactive, either because the industry had not adjusted itself to new conditions, or because there was still a great supply of storage coal in the country. August proved to be a better month and developed a good strong demand for domestic coal, with a fair demand for steam sizes. The period, however, from May 1 until the end



La SALLE COUNTY CARBON COAL CO., La SALLE COUNTY, ILL.

of August was perhaps the hardest and most trying of the year.

The third and last period embraces from Sept. 1 to the end of the year. Starting in September, there was a healthy and vigorous market, that grew in strength every week. This condition was brought about by two reasons; the first, that buying is always heavy in the fall, and the second, that practically all storage coal held by the various industries had been consumed. In October, rumors were prevalent, all relative to unrest and dissatisfaction among the miners. These rumors spread about, and brought on a regular stampede of nervous and excited purchasing agents who were at that late date doing all possible to prevail upon the operators and jobbers to accept additional orders.

THE TARDY CONSUMER NOW BESIEGES THE MINES

The public, that is, the householder who had apparently forgotten the stern lessons taught by the fuel famine of 1917, had not bought very heavily from the retail dealers during the summer. As soon as trouble with the miners was threatened this class of consumer made frantic demands on the retailers, who in turn besieged both operator and jobber in attempting to place extra orders. Soon practically every mine in this part of the country had booked far more business than it could take care of. To add to the situation, it now developed that there was a decided car shortage. New cars had not been built fast enough to replace old and worn-out equipment, and lucky was the coal field anywhere in the United States, that could boast of an 85 per cent car supply for any length of time. A great many mines in the East, had but 50 or 60 per cent car supply for practically months at a time.

On Nov. 1 the strike came, a deliberate attempt on the part of the United Mine Workers to hold up the American public. At first the Government took a stern attitude, and showed the miners that the Government meant business. Dr. Garfield was recalled, and left his duties at Williams College to return to his old post at Washington. Dr. Garfield has always had the respect of the coal industry, and his return to Washington was looked upon with favor. Within a short time however, the coal industry knew that something was up at Washington. It appeared that Secretary of Labor Wilson had made an attempt, which luckily proved futile, to settle the strike on a basis satisfactory to the labor

element only. It is said that Secretary Wilson was deeply disappointed over the failure of his plans, as some think he had political ideas in mind, whereby the labor vote would have come in very handy. However, this is mere heresay. Later on, Mr. William McAdoo succeeded in getting some free publicity by injecting himself into the situation. In a modest and retiring manner, Mr. McAdoo, although a private citizen, presumed upon his relationship and old official position, by intruding on the various agencies at Washington at work on a settlement of the strike. Mr. McAdoo claimed, it is said, that a 2,000 per cent profit was made by some operators. While his contention was misleading, it did a great deal of harm, as it stirred up the United Mine Workers, and made them more set than ever in their demands on the operators.

Dr. Garfield, in the meantime, had decided that the mine workers were entitled to a 14 per cent increase, which the miners refused. Toward the middle of December, Messrs. Palmer and Tumulty, acting in the President's name, we understand, made a temporary peace with the miners. This arrangement was contrary to the plans laid out by Dr. Garfield, so that gentleman resigned, and returned to Williamstown, leaving the final settlement of the strike in the hands of certain astute politicians at our capitol.

When the men went back to work, toward the middle of December, it was discovered that nearly all of the producers and jobbers in the Middle West had enough orders on file to operate their mines for some time.

Naturally, those coming into the market to buy had trouble in placing their orders. It is no exaggeration to say that it is almost impossible to buy, at this time, coal from any of our better known mines either in Illinois or Indiana. However, as time goes on, this condition will change, as certain mines will run out of orders on certain sizes, and will have to take on additional business. It is believed that operators and jobbers will be in a position to take on more business at least by the middle or latter part of January. Coal producers are looking forward to a busy season from now until late in the spring. Labor is still unsettled, and many large coal consumers are endeavoring to accumulate a surplus. In addition the mines will have to work full time for a long while to make up for the tonnage lost during the strike.

Predictions for 1920 are uniformly optimistic. Practically every operator and distributor in the Middle West has the greatest confidence in the future. It is generally said that the labor question, so far as the miners are concerned, will have to be settled on some sort of a permanent basis, but it is believed that this can be done, and will be done soon. On account of the tremendous activities in all sorts of manufacturing, and the increasing demand for American coal for export, it is predicted that there will be business enough to keep the mines of the country mining pretty steadily. The year 1920 looms up bright, and unless some of the best brains of the country are mistaken, it will prove one of the best years the coal industry has ever experienced.

Connellsville and the Byproduct Coke Industries in 1919

BY B. E. V. LUTY.
Pittsburgh, Pa.

THE BYPRODUCT coke industry now rests on its oars. There was little done in 1919 by way of the new construction of ovens, beyond the completion of various plants, the erection of which had been started during the war, and scarcely any new plants were projected. The reason for the halt is simply that labor is very scarce and the cost of building is extremely high. In one quarter the estimate is made that byproduct plants in batteries of 50 to 100 ovens would now cost about \$45,000 per oven. Even at that they would probably pay for themselves, but prospective builders probably figure also that waiting may pay just as well or better, by saving part of the cost.

The byproduct coke industry has fully justified itself. Ovens are operated more economically than a few years ago, producing much more gas per ton of coal carbonized and somewhat more of the various byproducts, while year by year there is a greater latitude in the choice of coal. Byproduct coke, particularly of late, has made excellent records in the blast furnace, which, as a rule, produces more pig iron per day, and with less coke per ton. This is due not so much to the coke being better, piece by piece than beehive coke, than to its being more regular.

According to the Geological Survey reports it was in the week ended Oct. 19, 1918, that the production of

byproduct coke for the first time exceeded the contemporaneous production of beehive coke in the United States, but that was rather an empty honor, since the circumstance was due to a decline in the beehive output. Unfortunately it became necessary for the Geological Survey to discontinue its weekly reports of byproduct coke production before the end of January, 1919, through some of the byproduct coke producers refusing longer to co-operate, but the weekly report of beehive coke production was still continued. When the final figures of the coke production in 1919 are issued they will doubtless show heavier production of byproduct than of beehive coke, but 1919 does not furnish the test of a calendar year of full demand for coke. Under the stimulus of a full demand the beehive ovens might come close to their record, which was the 35,464,224 net tons produced in 1916, while it is very doubtful whether the existing byproduct ovens can produce as much as 3,000,000 tons a month. Their output in 1919 was probably about 2,500,000 tons a month in the good months, and much less in the poorer months, particularly April, May and June, when blast furnace and steel plant operations were light from lack of orders, and October and November, when the iron and steel strike was a limiting factor.

In 1919 the Connellsville region again found that

the byproduct coking industry was not marked to deprive it of all profitable business. It is true the production of Connellsville coke was much less than in 1918, not much over 10,000,000 tons, and thus not much above the average of 20 years ago, but the coal business of the Connellsville region was very satisfactory. The region profits not only by the quality of its coal for coking purposes, a quality that is recognized by byproduct coke producers, but also by the thickness of the vein and the relative ease with which the coal is mined.

The wage scale from Nov. 10, 1917, to Dec. 1, 1919, was based on \$2.29 per 100 bu. for pick mining and loading room and rib coal. As a bushel is 76 lbs., making about 26 1-3 bu. to the short ton, the rate was only a trifle over 60c. per ton. The new scale, \$2.66, is equal to 70c. Rates under the two scales for loading machine coal, \$1.65 and \$1.88, are equal respectively to 43½c and 49½c.

OPERATORS INCREASE THEIR LOADING FACILITIES

Year by year Connellsville coke operators increase their facilities for loading coal, until at the end of 1919 there were relatively few operations of any size, or with any amount of coal still in the ground, that were not fairly well equipped to load coal for rail shipment. In 1919 the prices obtained for coal were moderately satisfactory to Connellsville operators, and distinctly more so to Pittsburgh district operators.

The largest byproduct coke plant in the world, the Clairton plant, near Pittsburgh, of the United States Steel Corporation, depends practically altogether upon Connellsville coal, the operation contemplating, in the long run, water shipment exclusively. On account of the many operations in the Connellsville region controlled by the Steel Corporation it was feasible to select operations to supply Clairton, that could ship by water. Late in 1919, 128 additional byproduct ovens were completed at Clairton, making a total of 768 in the plant, arranged in 12 batteries of 64 ovens each. The next plant in size is the 700-oven plant at Gary, Ind. The total number of byproduct ovens in the United States is between 10,000 and 11,000, the actual capacity per oven varying considerably.

The year 1919 opened with Connellsville coke at Government limits, \$6 for furnace and \$7 for selected 72 hour foundry, per ton at ovens. Just after the middle of the month announcement was made that Government price control would be relinquished at the end of the month, and prices began to drop within a few days. Most of the consumptive requirements were under contract. The contracts having been made during the war. The majority of the contracts provided that in the event of there being no Government price there should be a monthly adjustment of price between buyer and seller, these adjustments being made month by month, much in accordance with the spot market as developed from time to time by open trading. A few contracts were made at "last Government price" which proved disadvantageous to the buyers. In some cases the operators having such contracts made what were technically voluntary price concessions, but were in substance caused by knowledge that if the concessions were not made the furnaces would not operate and thus would not be obligated to take coke at all.

The spot furnace coke market declined steadily after the middle of January until April, when \$3.50 was reached in some cases. Then the market stiffened slowly and somewhat irregularly until by July 1 it stood

at about \$4. Thereafter it advanced slowly for four months and then rapidly in November and the fore part of December, until just before the reinstatement of Government prices on Dec. 8 when some coke sold at \$10 to \$12 a ton.

The major portion of the contract furnace coke tonnage ran out June 30, and fresh contracts were made for the second half of the year on various terms. The flat price contracts were generally at \$4.25 to \$4.50, while sliding scale contracts were largely at 6½ to 1, against basic pig iron at valley furnaces. With the \$25.75 price that ruled throughout the first four months of the half-year this made a settlement price of \$4.12 for the coke. For November and December settlements were much higher as pig iron was advancing.

In November there was much contracting for the first half or all of 1919, and some ratio contracts, similar in form to those just mentioned, were made at 5½ to 1, while a few were made at 5 to 1. Flat price sales were made at \$5, \$5.50 and \$6, the average of these contracts being much nearer \$6 than \$5. The advance in spot coke occasioned by the coal strike curtailing supplies to byproduct ovens discouraged further contracting, and the imposition of Government price limits put a complete stop to negotiations, leaving a considerable volume of consumption for 1920 uncovered.

Railroads' Largest Customer

The Director of the U. S. Geological Survey, George Otis Smith, says: "As the railroads' largest customer, the coal mining industry is largely concerned in the solution of the transportation problem now so prominently before the American public. It is plain that adequate service and low rates mean much to the health if not to the very life of our industry, yet even as large buyers of transportation we should not seek preferential rates at the expense of the rest of the public, any more than as sellers of fuel we should be willing to let the Railroad Administration procure its supplies from our mines at prices so related to bare cost that the public must make up the difference. You coal operators know too well how that style of shoe pinches to wish the same kind of narrow policy on the reorganized railroad system. We must allow freight rates to be determined by facts of transportation cost, rather than by what we claim to be the exigencies of our own business.

"Even a legislature cannot impose rates, however they may seem calculated to serve public interest; that would deny to the railroad the reasonable reward necessary for its financial and physical upkeep. The Supreme Court has ruled that a State law can not force a railroad to haul coal at a loss on the supposition that the profits in the wheat traffic will recoup the carrier. So it is that in a spirit of fairness the mining industry ought to help in the adjustment of rates on a basis adequate to revive healthy conditions on our railroads.

"In its relation to the mining industry the Government needs to be fair, whether the relation is that of mineral landlord or of business investigator or of tax collector or of purchaser of fuel. Disregard of established equities, ill-advised charges of bad faith, threats of commandeering, or offers of confiscatory terms are no longer warranted in these days when the Government's necessities are no greater than those of other consumers."

Pittsburgh Coal Trade in 1919

BY B. E. V. LUTY

Pittsburgh, Pa.

THE PITTSBURGH district coal market entered and closed the year 1919 with Government price limits in force, while from Feb. 1 to Oct. 31 there was a free market. During that period there were interesting developments.

After the signing of the armistice the tenseness of the market wore off, and by the beginning of 1919 prices were not uniformly at the limits allowed by the Government control. The demand was very limited, as consumption decreased after the cessation of hostilities and there was much less disposition on the part of consumers to carry stocks. The situation was helped somewhat by light production during the holidays, the men celebrating freely, while many mines were closed for the period.

During the first two or three weeks of January off-grades of coal were being sold in the market at less than Government limits, which for the Pittsburgh district were \$2.10 for slack, \$2.35 for mine-run and \$2.60 for screened, with a 15c. brokerage allowance in some cases, while many sales of good coal were being made with a brokerage allowance, the dealer selling to the consumer at the regular price, not charging him any brokerage. Many wagon mines were closed while of those operating few were able to secure the extra prices allowed. Gas coal, however, was in relatively scant supply and commanded the limit prices.

GOVERNMENT PRICE CONTROL DISCONTINUED

About Jan. 15 the Fuel Administration announced that price control of coal, as well as the zoning system, would be discontinued at the end of the month. When the time arrived an incident occurred which was forgotten in most quarters in a week or two, some operators announcing the following schedule of prices: Slack, \$2.35; mine-run, \$2.50; 1-in., \$2.60; 1 1/2-in., \$2.75, per net ton at mine, Pittsburgh district. The actual market developed was on the basis of an asking price of \$2.35 for mine-run, with concessions according to the quality of the coal and the urgency of the seller's position. Odd lots of coal loaded went as at low as \$2. On the other hand consumers of gas coal who had had extremely trying experiences during the war were disposed to pay prices asked and get under cover, so that a fair tonnage of 1-in. gas coal was contracted for at \$2.60 for the coal year, to April 1, 1920.

During February, March and April the coal market dragged and the market had a basis of strength but the basis was not visible. Consumers of coal were imbued with the idea that was very general throughout the country as to commodity prices as a whole, that since the war was over all prices would decline, and decline sharply. Apart from the mental attitude of buyers there was the physical fact that there were large stocks of coal in consumers' hands and the further fact that consumption was decreasing, domestic consumption falling with the progress of the season, while the steel mills, the most important group of customers of the Pittsburgh coal district, were operating at lower and lower rates. The steel mills were operating at between 85 and 90 per cent of capacity at the beginning of the year, but by the middle of May they were down to approximately a 50 per cent rate.

During this period of extreme apathy on the part of

buyers the Pittsburgh district coal operators were sustained in their price views by knowledge of their production costs, which were much higher than generally believed by consumers, and by the belief that under the Government control of prices they had not been given as large a margin as several other districts, hence if other districts sold coal at much below the former Government limits that did not necessarily constitute a reason for the Pittsburgh district doing so.

PENNSYLVANIA R.R. CLOSES LARGE CONTRACT

About May 1 an event occurred that put a new aspect on the situation and strengthened the operators' hand. It was announced that the Pennsylvania R.R. had closed a contract with the Pittsburgh Coal Co. for 1,200 tons of coal a day to April 1, 1920, at \$2.35 for mine-run. The Industrial Board of the Department of Commerce had been endeavoring to bring the Railroad Administration to the point of contracting for railroad fuel at stabilized prices, but having failed to accomplish anything in its first effort, than to secure an acceptance of its steel prices, the attempt was abandoned. The individual roads bought at various prices and for various periods, the shorter periods involving the lower prices, and some Pan Handle coal went to railroads for short periods at less than \$2.

By reason of railroad buying, and other important causes, the coal market situation improved in May, definitely rounding the turn. Lake shipments began, though definite prices were not set. The steel industry began to revive and of course took more coal when it was looking forward to heavier operations than when its operations were decreasing. Buyers generally began to observe that after all prices of commodities on the whole were no longer declining and hence they looked with more favor upon coal.

OPERATORS EXPECTATIONS NOT REALIZED

The coal operators were convinced that trying times were likely in the winter, and they did not believe the railroads would be able to handle abnormal quantities of coal, as there had been few additions to their rolling stock, which had suffered during the war. They considered it extremely probable that the miners would demand large wage advances when the agreement ran out, as it would upon the declaration of peace. They did not expect what eventually did occur, a demand for wage advances and changed working conditions when the agreement which was to run to the declaration of peace, or to April 1, 1920, was still in force, but neither did they expect the declaration of peace to be postponed so long by the failure of the Senate to act on the Peace Treaty.

The operators were therefore very conservative in the making of contracts for execution during the remainder of the coal year, a common policy being to sell on contract about half the normal output. By the end of June most of the operators had withdrawn from the contract market, and several prominent interests then advanced their circular prices from \$2.35 to \$2.50, mine-run basis.

Early in the year productions in the Pittsburgh district had been at only about 30 per cent, but with the

beginning of lake shipments operations increased and by mid year the district was operating at 60 to 65 per cent of capacity. At this time consumers, particularly the steel industry, began to heed the repeated warnings of the coal producers, and started accumulating stocks, though on quite a moderate scale. When the steel strike started Sept. 22 some of the mills were forced to stop receiving coal, but those able to unload continued to take coal just the same, and thus the steel industry was moderately well stocked when the mining suspension began on Nov. 1.

From midyear to the reimposition of Government price limits the coal market increased in strength. The change was particularly marked in slack, which in the first couple months of lake shipments, with the attendant increase in output, the sales were made at even less than \$1.50.

The coal mining settlement, by the acceptance on Dec. 10 of President Wilson's proposals by the miners' representatives at Indianapolis, was followed by a quick return to work of the miners in the Pittsburgh district, but within a few days car shortages developed. The advent of real winter weather was practically co-in-

cident with the mining settlement, thus slowing down railroad operations somewhat, while many cars belonging to the service of the Pittsburgh district had gone far afield. To the extent of about 21,000 cars, according to investigations made by Pittsburgh district operators, loaded with coal in western Pennsylvania, Ohio and West Virginia districts had gone to Chicago and points beyond, some as far as Salt Lake City. The railroads were prompt and efficient in moving the loaded cars to destination as soon as the husbanding of coal supplies became unnecessary, but even at the end of the year the Pittsburgh district was still short of the number of coal cars usually in the service.

The situation left for the new year was that no consumers had any stocks of coal, when normally they still have some winter stocks left, and a great many were definitely short of coal and unable to operate as fully as conditions in other respects would warrant. With the steel industry oversold and with practically all coal consuming industries desirous of operating to their fullest extent, the outlook for a heavy coal demand was never better. Nineteen twenty is being looked forward to with great interest.

Detroit Coal Market in 1919

BY STAFF CORRESPONDENT

EMERGING from war-time restrictions into a protracted interval of stagnation, only to be brought again under governmental regulation after a few weeks of improving activity, the coal business in Detroit, in the year just passed, has been full of disappointments and discouragements for wholesalers and jobbers and conducive to anxiety and apprehension on the part of consumers.

BUSINESS POOR IN EARLIER MONTHS

Through the earlier months the wholesalers and jobbers paid office rent, and filled the role of observers rather than of active participants in the business from which they derive this rent money. Under the active functioning of fuel administrators, federal, state and municipal, and their antipathy to coal brokers, little remained for the wholesalers and jobbers but to sit helplessly, though interestedly, and observe the progress made by the various authorities in handling business not as the jobbers were accustomed to.

Under the operation of the federal zoning system, they saw the local market being overwhelmed with a flood of low grade coal from districts that ordinarily are called on to contribute little to its supply. They saw the high grade stock that had constituted the market's chief reliance diverted to eastern centers and the export trade. They saw their customers in the retail trade and among the consumers of steam coal, responding patriotically to the urging of the Fuel Administration, and buying heavily of the inferior stock in the effort to make certain that they would not be left wholly unsupplied.

When the Fuel Administrators ceased functioning, the jobbers devolved the task of restoring the market; but progress was slow. For weeks following the lifting of the zoning regulations and removal of federal price restrictions, the market remained in a state

of languor. The storage yards of retail dealers were crowded with an unsaleable miscellany, in which coal of inferior grade and in sizes better adapted to steam plant use than for consumption in household heating equipment, predominated. Steam plants were overstocked with low grade coal and received without enthusiasm the information that it was again possible to bring into Detroit the high grade stock from West Virginia and other mines that had long been withheld.

The retailers started the new coal year with capital tied up in coal, their customers having protested against receiving it because of the little yard space for its accommodation. The domestic buyers, deprived of anthracite, which in the case of many was the only fuel with which they were familiar, were supercritical as to substitutes. Many of the consumers of steam coal overstocked with the inferior coal were unwilling to place orders for the higher quality coal until they could clear their yards of stocks which presented the menace of internal combustion and produced unsatisfactory results in boiler rooms.

GOVERNMENT SETTLEMENTS COMPLICATE SITUATION

With this basis for stagnation in the retail and steam coal trade, the situation was complicated by the dilatory policy of the federal government in negotiating settlements of cancelled war contracts and in making payments for government equipment and supplies. For some weeks large industrial plants were hindered in efforts to revert to peacetime production by the loss of working capital tied up in government machinery, material and manufactured goods, and by the delay of the government in removing mechanical equipment which filled the space required for the machinery of peace production. The unsettled industrial condition was reflected in curtailed operation or suspension of factory production with consequent reduction in coal consumption. This cut down

buying requirements of steam-coal users purchasing in the open market and protracted the interval necessary for other steam plants to work out the low-grade coal in their reserves.

Meantime prices held at approximately the maximum fixed under the Fuel Administration, with small consignments coming chiefly to the retail dealers from the mining districts that supplied the city before the war. The market dullness continued through the spring and early summer. Retail dealers endeavored without success to effect some arrangement under which the municipal government would take over their unsatisfactory stocks.

ACTIVE BUYING IN LATE SUMMER

In the late summer and early fall a more active buying movement set in. The buying, however, was irregular and reflected the general theory among consumers that lower prices would be obtainable later in the season. The tendency to hold back orders received encouragement from time to time from statements issued from semi-authentic sources in Washington. The belief among steam-coal users that the price of coal would revert to prewar prices, which was supported also by the refusal of the Railroad Administration to close contracts at the current prices, was an influence tending to encourage disregard of the reiterated warnings of the imminence of labor difficulties in the bituminous mining regions. The threats of strike action apparently were regarded as part of a well prepared plot between operators and mine workers to maintain war-time prices.

COAL CONTINUED TO COME AFTER STRIKE BEGAN

There was a certain amount of buying in progress, however, and when the strike actually materialized on Nov. 1, the preparations of jobbers and wholesalers had been so well worked out that coal continued coming into Detroit in quantity sufficient for steam and domestic requirements for two or three weeks.

Following the reinstatement of Fuel Administration prices, the Railroad Administration representing the Fuel Administration, seized all coal on cars, the Regional Committee finding the Detroit supply so satisfactory that a liberal policy of distribution to original consignees was adopted. Detroit consumers ultimately were made to feel the pinch of supply in other western markets by diversion of an increasing proportion of the coal sent to Detroit to provide for the needs of the railroads or of consumers in other cities. With the city confronting an actual shortage because its coal was being sent elsewhere, very drastic restrictive regulations were put in operation to conserve light, power and coal supply.

POOR CAR DISTRIBUTION DECREASES SUPPLY

Termination of the strike came before any actual serious hardship had been experienced, beyond that attending the suspension of operation by numerous industrial plants and the reduced production of others. It brought a slight improvement in volume of shipments into Detroit. The movement has not yet regained the level that was maintained previous to the strike, though jobbers and wholesalers look for a more liberal supply soon. In resuming shipments, however, operators are giving first attention to the fulfillment of contract obligations, with the result that free coal is not plentiful in the Detroit market.

Prices on the contract coal in most cases are said to show an increase of 25 or 30c. over the maximum set by the government, this advance being an absorption of the increase in wages granted to the mine workers. The change in contract price is permissible under terms of most of the contracts which provide for adjustment of selling price to meet changes in mine-wage scales.

CONTRACT CONSUMERS ARE NOT SUPPLIED

Owing to the present condition of supply the consumers who are not protected by contract find it necessary to do considerable searching to provide for their requirements, though the prices at which they are privileged to buy do not embody the increase applying to contracts.

Throughout the year the anthracite situation has been unsatisfactory, and the supply irregular. During the earlier months of the coal year the prediction frequently was made that a freer movement would follow the closing of the lake navigation. This so far has failed to materialize. Supplies in retailers' yards have not been large and would not last long should extremely low temperatures for several days stimulate a strong buying demand. While it is believed that a large distribution to consumers was effected during the summer, despite the slow shipments, a considerable volume of renewal orders may reasonably be expected in the near future.

Reinforced Concrete Headframe To Be Erected at a Scotch Colliery

The first ferro-concrete headframe in Scotland is now in course of erection at the Lochore Colliery of the Fife Coal Co., Limited. As the shaft is being sunk on the lower portion of the property, the superstructure had to be carried to a considerable height so as to bring the landing into line with the general level of the colliery. The shaft will be sunk 20 ft. in diameter in the clear. The foundation for the shaft headframe is in the form of a reinforced concrete raft 41 ft. sq. x 4 ft. thick, and carried out from the back of this for a distance of 70 ft. are two underground beams 5 ft. x 3 ft., which terminate and are connected with a solid concrete foundation slab, from which the batter posts spring and run right up to the top platform at sheave level. On the top of the concrete raft referred to there is a super-foundation 30 ft. sq. x 7 ft. deep. The ground will eventually be filled up to approximately this level, the shaft being of course, carried through this super-foundation, upon which the four main columns surrounding the shaft are set, being monolithically connected to the foundation. These columns, tied at intervals with cross beams and angle braces, are carried right up to the sheave platform.

The decking level is 26 ft. above the present ground level, and is roofed over at a height of 14 ft. The structure will be walled for the first half of its height with steel mesh, cement-covered inside and outside to form a wall 2 in. thick, and the upper half will be glazed.

The headframe is 90 ft. 3 in. high from the ground level to the center of the sheaves, whilst the overall height from the foundation level to the top of the standard is 126 ft. 3 in. The top is surrounded by a concrete platform 30 ft. x 16 ft., thus providing ample space for carrying out any work at the gears, etc.—*The Iron and Coal Trades Review*.

Cleveland Coal Trade in 1919

By EDWIN C. BOEHRINGER
Cleveland, Ohio

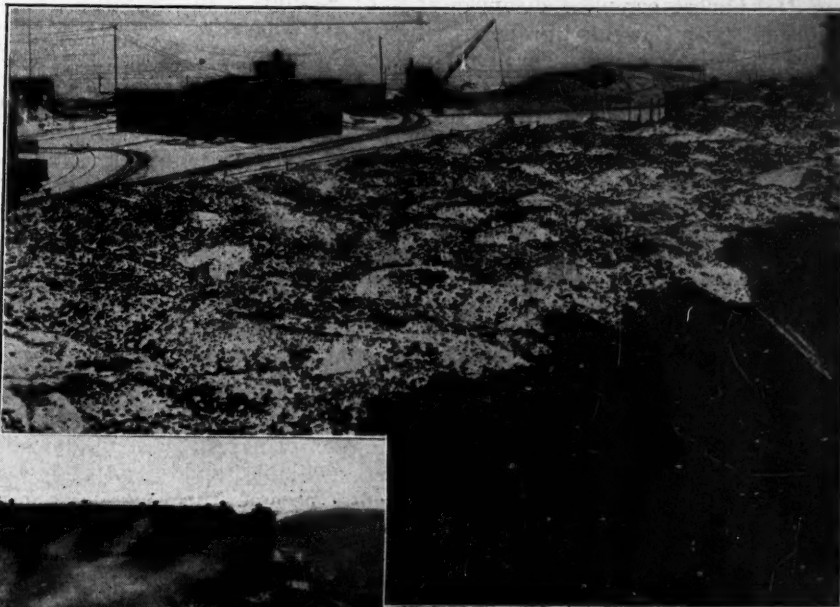
COAL history in the Cleveland district for the past year may be written in terms of stockpiles—the extent of them at the beginning and the lack of them at the end of the year. Probably no twelve months in the industry's local history have been so packed with precedents overturned, demand reaching such extreme ranges, and trade conditions generally upset. The year in Cleveland ended as turbulent as it was placid in beginning.

January's coming found demand for steam and domestic sizes of bituminous coal at the low ebb that followed the signing of the armistice. Ohio mine-run and slack were quoted at \$2.35, f.o.b. mine, and prepared sizes at \$2.60, but practically none was moving. By far the greater portion of industry in Cleveland is allied with iron and steel, and huge stockpiles laid down in the summer and fall of 1918 remained as mute witnesses to the record-breaking consumption expected during the winter.

Steam coal users, face to face with decreased operations and abnormal stocks, withdrew completely from

Railroad Administration on mine-run. Good-sized sales of slack, too, were made at about this level in the Cleveland district.

May saw steam-coal consumers in Cleveland besieged by operators to buy. Warning after warning that prices would increase and supplies be restricted later in the summer were heaped upon users, but with little effect other than to halt the downward trend of prices. From the middle of April to about July 1 prices remained stationary, and indications that a revival in buying was imminent caused them to multiply. Opera-



PART OF 5,000-TON COAL RESERVE OF CLEVELAND ELECTRIC ILLUMINATING CO. AT ITS EAST 72D ST. PLANT



COAL STOCKPILE OF THE LAKE-FRONT IRON & STEEL PLANTS AT CLEVELAND

tors also took heed as July 1 neared, and were much less anxious to tie up their output on long-time contracts. The recovery at this time was more pronounced in mine-run than in slack.

The beginning of the last half of the year was plainly marked. Trade conditions took a decided turn for the better and order books grew fatter. Practically no coal buying having been done in the preceding six months, the bottoms of stockpiles began to be visible. Recognition of the fact that coal prices were

mounting slowly, but surely, and that delay could bring only decreased supplies appears to have been almost simultaneous. The result was that early in July several of the largest steam-coal users in the Cleveland district contracted. When the smaller users learned of this they too began contracting, but as usual they were just too late. They paid from 10 to 25c. a ton more for their delay.

From July to the beginning of the strike, on Nov. 1,

the market. Domestic consumption was cut probably 60 per cent by the mild weather. Consequently, the termination of government control on Feb. 1 had only the effect of precipitating a slump in prices. Steam coal sales in the five months from January to May were the lowest on record and prices acted accordingly. From February to the middle of April prices gravitated cellarward, and as low as \$1.88 finally was done by the federal

the trend of prices and demand for steam coal was consistently upward. From January, when No. 8 mine-run was quoted at \$2.35, at the mine, to steam-coal consumers in Cleveland, the quotation fell as low as \$1.90, or thereabouts, in mid-April, had risen to about \$2.15 by late July, and in September and October, when the strike loomed up a certainty, reached the high mark of \$2.75@2.85 for the year. Buying of steam coal became feverish in September and continued so as long as any was to be had. But so low had most stockpiles been allowed to become that steam-coal users in Cleveland, on an average, entered the strike with no more than a month's supply on the ground.

No real effects from the strike were felt in Cleveland until late November. Restoration of the government maximums of \$2.35 for mine-run and slack, and \$2.60 for prepared sizes, meant little or nothing, in view of the almost complete disappearance of receipts. In normal times Cleveland proper receives about 2000 cars of bituminous a day—barring that consigned to the lake trade; about Dec. 1 receipts dropped to 50 cars a day, and sometimes fewer. Dec. 18 saw the arrival of five cars from the Ohio No. 8 field—the first coal to be received in Cleveland that was mined following the ending of the strike. On Dec. 22 the local fuel committee relinquished its hold on all receipts and except for price and trade, conditions became normal. Restrictions as to heating and lighting were in effect less than ten days in Cleveland.

Domestic demand for bituminous coal was practically nil as 1919 dawned. Cellars were well-stocked in the fall of 1918, and the extremely mild winter enabled them to survive into the spring with supplies not more than half consumed, in many instances. In the spring, anthracite and Pocahontas again became available, and domestic demand for these two grades became the greatest in the history of the local retail trade. Retail dealers, as a result, did a winter business all summer long in these sizes, and domestic consumers of coal entered the strike period prepared for a siege of several months, using only smokeless grades.

DECEMBER PRICES HIGHER THAN IN JANUARY

Anthracite wound up the year priced little higher than at the start. In February egg was bringing \$11.25, delivered in Cleveland; in July it could be had for \$10.85; in September for \$11.65, and in December for \$11.75. Chestnut, which ended the year with a local spread of \$12@12.20, could be had for \$12 in September; \$11.65 in July; \$11.15 in May, and \$11.55 in February. Forked Pocahontas was quoted at the close of the year at \$10@10.50, where in July it could be had for \$9.50, and in May for \$9. No. 8 slack was quoted at \$4.95, delivered Cleveland, in March; \$4.75 in April; \$4.70 in May, June and July; \$4.90 in August; \$5.10 in October and later \$5.10@5.50 when government prices were restored. On No. 8 mine-run, delivered Cleveland, the retail price was \$4.95 in March; \$4.85 in April; \$4.70 in May; \$4.80 in June; \$4.90 in July; \$5.10 in August; \$5.20 in September, and \$5.75 @5.90 when the strike broke in November.

Opening of navigation on the Great Lakes in March saw dock piles of coal at upper lake ports almost the largest, if not the largest, in the history of the lake trade. This coal was a mixture of Indiana, Illinois, Ohio and Pennsylvania coal, partially afire. Forced by the zoning system to forego their supplies from Ohio, Pennsylvania and West Virginia in the 1918 season, the

upper lake coal trade came back stronger than ever for fuel from these states. The lake trade thus boomed from the day the first lake freighter was able to get through the ice. In the week of June 7, the Lake Erie docks set a new high record for loading when they dumped 1,122,322 net tons of cargo bituminous coal and 46,007 tons of vessel fuel, a grand total of 1,168,329 tons. By July 1 the 1919 season was a good 1,500,000 tons ahead of the 1918 season to that date.

RECEIPTS OF COAL AT THE HEAD OF THE GREAT LAKES

	1918		1919	
	Anthracite	Bituminous	Anthracite	Bituminous
Northwestern Fuel Co....	443,100	1,352,800	447,400	829,400
Berwind Fuel Co.....		819,000		557,400
Pittsburgh Coal Co....	338,900	1,320,500	254,100	1,217,100
Superior Coal & Dock....	20,500	115,500		
Reeves Coal & Dock....			24,900	93,500
Boston Coal & Dock....	31,000	224,700	49,900	175,700
Carnegie Dock & Fuel....	110,300	1,127,100	158,300	747,500
Hanna Coal Co.....	127,500	497,500	138,300	292,100
Island-Creek Coal Co....		328,800	8,100	153,100
Clarkson Coal Co.....	12,000	318,800	44,500	256,400
Northern Coal & Dock Co.	48,100	478,200	87,400	280,800
Zenith Furnace Co.....		457,600		414,600
Philadelphia & Reading..	147,500	195,800	183,900	170,500
Steel Corporation.....		1,306,500		939,500
Reiss Coal Co.....	140,400	601,500	109,200	317,000
Pittsburgh & Ashland....	6,600	166,600		101,300
Lehigh Valley.....	183,700		120,200	
Great Lakes Coal Co....		280,000	6,200	310,000
Totals.....	1,609,600	9,590,900	1,632,400	6,855,900

Shipments to the head of the Great Lakes in July and August continued at a record pace. The middle of September, however, saw the 1919 season practically ended three months in advance of normal seasons. Early in September handlers at the upper lake coal docks struck, and were out more than a month. In the meantime, sailors on the lake fleets became restless and there was considerable talk of a sympathetic strike to tie up downbound iron ore cargoes and aid the striking iron and steel workers. By the time these troubles were ameliorated, and vessels that had been temporarily tied up were put back in the lake ore and coal trade, the coal strike broke. Where on July 1 lake shipments of bituminous were ahead of 1918 shipments by 1,500,000 tons, the end of navigation—the middle of December—found the 1919 season about 6,000,000 tons behind 1918. The loss from July 1 to Dec. 15 in the 1919 season was some 7,500,000 tons as compared with 1918.

The total movement of bituminous coal on the Great Lakes in the season of 1919 was 22,743,000 net tons. In 1918 the movement was 28,153,317 tons. The average for the ten years ending with 1919 was 23,500,000 tons, thus relegating 1919 to slightly below the average. In net tons including the Great Lakes trade in bituminous (cargo coal) has been as follows:

Year	Tons	Year	Tons
1919	21,713,341	1914	22,995,000
1918	28,153,317	1913	28,328,683
1917	26,828,759	1912	23,335,000
1916	24,369,000	1911	21,782,685
1915	22,420,000	1910	22,838,700

One feature of the 1919 season on the Great Lakes was the demand for slack. More slack was handled by car dumpers at the Lake Erie ports than for many a season. Another feature was the reduction of lake freight rates, making the 1919 ones about on the same level with 1917. The 1918 rate of 48c. a net ton on bituminous from Lake Erie to Duluth was reduced to 42½c.; the rate from Lake Erie to Lake Michigan ports was cut from 55c. to 47½c. In December the rate both to the west bank of Lake Michigan and to Duluth-Superior soared to \$1.25 a net ton.

Casting aside the differences between the operators and the mine workers—problems which are national and not local—the outlook for 1920 is most bright.

Columbus Coal Trade in 1919

BY J. W. LEHMAN

Columbus, Ohio

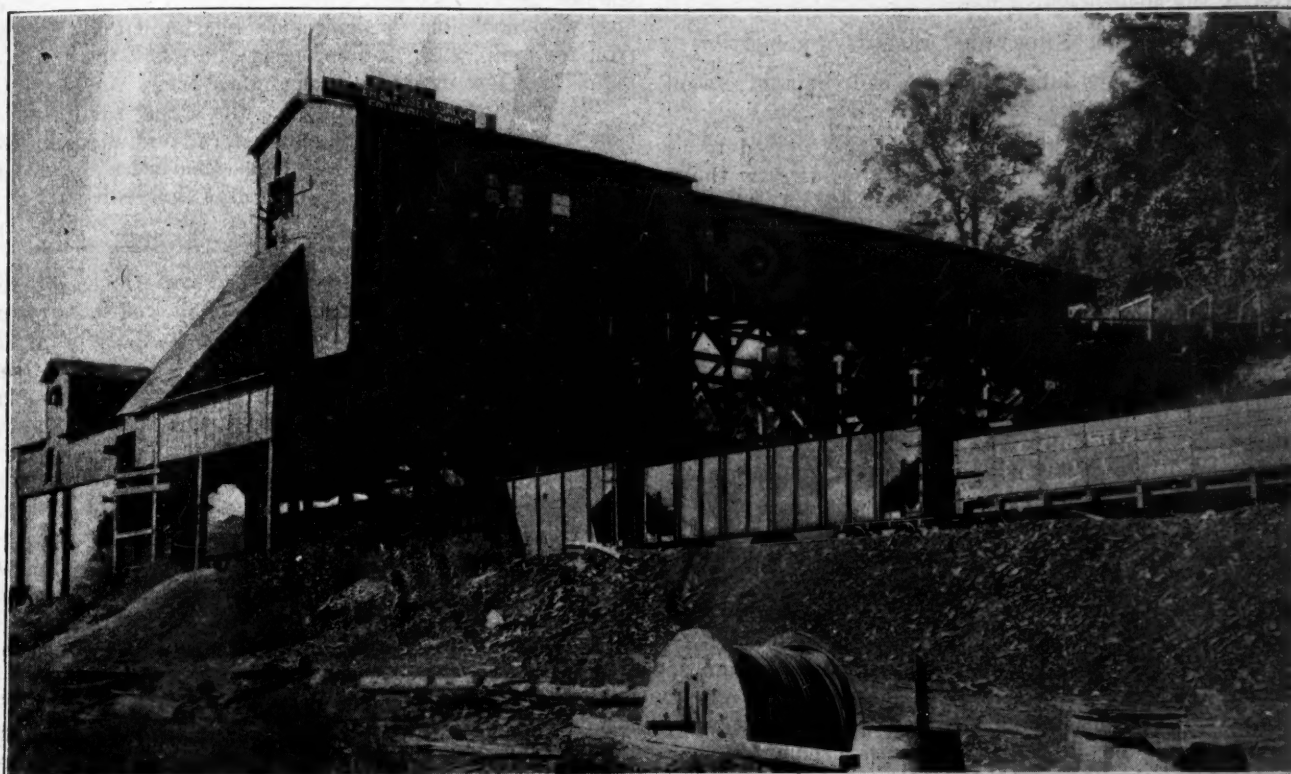
THE YEAR 1919 was a peculiar one in the coal trade in the Buckeye State. Early in the year there was government regulation of prices and distribution and the same thing occurred toward the closing days. But during the nine months ending Nov. 1 there was unrestricted operation and distribution, which allowed the market to take the course which was the natural result of the law of demand and supply.

On the whole the year was not as prosperous for

Production figures for some previous years in contrast with those of 1919 show that 1912, 1913, 1916, 1917 and 1918 exceeded the year just closed in production.

In 1912 there was a total of 34,444,291 tons produced; in 1913, 36,285,468 tons; in 1914, 18,736,407 tons; in 1915, 22,627,046 tons; in 1916, 34,526,552 tons; in 1917, 41,677,986 tons, and in 1918, 47,849,236 tons.

In arriving at the estimate for the 1919 production



TIPPLE OF THE POMEROY PLANT OF THE ESSEX COAL CO., OF COLUMBUS, OHIO

either the operator or the jobber as it might have been, although some showed fair profits, especially where they operated low-cost mines. Jobbers generally were not as prosperous because of the reduced volume of business. On the other hand the retailer was generally prosperous because of the better margins now obtainable since cost has been ascertained and dealers are inclined to do business with a proper margin.

33,687,000 TONS PRODUCED IN OHIO

One of the chief features of the year was a reduction in the output in Ohio as compared with previous years. Stimulated by war activities production in Ohio during the years 1916, 1917 and 1918 ranged higher than at any previous times and the closest estimates made for the year 1919 show a marked falling off from the high figures of 1917 and 1918. A careful estimate of the production in 1919 made by W. D. McKinney, secretary of the Southern Ohio Coal Exchange, shows that about 33,687,000 tons were produced in the State. As compared with 1918, when a total of 47,894,236 tons were produced, there is a falling off of approximately 14,000,000 tons.

the Southern Ohio Coal Exchange gives the following figures: Total production for commercial purposes from the first of the year to Nov. 1, 14,389,504 tons; production for railroad fuel during the same period, 4,359,787 tons and lake coal produced during the same period, 6,188,612 tons. This makes a total of 24,937,903 tons, which does not include non-revenue producing railroad fuel, which means coal used by railroads on which the mines are located. Last year there was approximately 9,000,000 tons of this class of coal and an estimate of the tonnage required for 1919 is 7,500,000 tons, making a total of 32,379,903 tons. To this tonnage must be added the number of tons produced since the settlement of the strike, about Dec. 14, which is estimated at 1,250,000 tons, making a grand total of about 33,687,903 tons. When the figures are finally tabulated this will not be very far from the real total.

Production figures in the southern Ohio field by months will show in a general way the trend of production during the year. With a capacity of approximately 2,000,000 tons monthly in the district the following production figures are given: January, 1,685,608 tons; February, 1,282,412; March, 1,434,107 tons; April,

1,602,850 tons; May, 2,602,920 tons; June, 2,917,316 tons; July, 3,039,094 tons; August, 3,085,136 tons; September 3,310,718 tons; October, 3,977,742 tons; November, nothing; December, 1,250,000 tons (estimated). These figures do not include non-revenue producing railroad fuel.

A study of the production in the southern Ohio field, which is a fair index of production in other parts of the state, shows that the smallest output was in February and March. This was slightly increased in April but did not show up with large gains until in May, when the railroad fuel contracts which had been hanging fire for some time were closed, and the operators started to extend their operations. In June and July there was a steady increase with the peak coming in October just prior to the suspension.

CAR AND LABOR SHORTAGE AFFECTS PRODUCTION

Car shortage and labor shortage had their effects on production during the year. The factor "no market" was also the principal cause for the heavy reduction in production. Looking over the chart of the fall in output due to the lack of market we find that the output started to decrease almost immediately after the signing of the armistice in November, 1918, and went up rapidly until the peak was reached on Jan. 25, 1919, when there was a reduction of 275,000 tons a week, due to lack of demand. Then the line started to drop slowly, with several reactions until April 26 when a heavier demand appeared and it reached normal lines toward the latter part of the year. In other words, during the latter part of September and the whole of October the market readily absorbed all the coal that could be produced in Ohio mines.

The car shortage made its first appearance July 19, and on Aug. 30 reached a point where the output in the southern Ohio field was reduced by 110,000 tons weekly. During the months of September and October the car shortage was not pronounced, as the railroad authorities made especial efforts to handle the larger production of coal.

Price fluctuations during the year are very interesting when studied in connection with production, car shortage and the approach of the time for the strike of the United Mine Workers. In January the federal prices prevailed in all districts and as a result there were no price fluctuations other than some selling under the government prices because of lack of demand. This was not general however, and, generally speaking, government prices ruled during the month.

MONTHLY PRICES COMPARED

In February, when the government regulation of the industry was removed, the first prices to be governed by the law of supply and demand since the time the Fuel Administration took charge in the latter part of 1917 prevailed. The average price paid in the Hocking Valley field, in which is included Jackson, Pomeroy and Crooksville, was \$2.85 for prepared sizes; \$2.53 for mine-run and \$1.98 for screenings. About the same levels prevailed during March, when lump averaged \$2.83, mine-run \$2.56 and screenings \$1.87. In April there was a rather marked reduction, due to lack of demand when prepared sizes sold at \$2.72; mine-run at \$2.27, and screenings at \$1.62. The month of May saw practically no improvement and in fact a still further decline in some grades. Prepared sizes sold at \$2.70; mine-run at \$2.20 and screenings at \$1.30. In June

prices on some grades were still further reduced to \$2.57 for prepared sizes; \$2.11 for mine-run and \$1.37 for screenings.

In July the average prices were: Prepared sizes, \$2.75; mine-run, \$2.10 and screenings, \$1.59. August showed some recovery when the average quotations were \$2.80 for prepared sizes; \$2.07 for mine-run and \$1.58 for screenings. In September prices still further recovered to \$3.20 for prepared sizes; \$2.40 for mine-run and \$1.65 for screenings. One of the features at this time was the weakness in screenings which was due to a heavy production of prepared sizes and lack of demand from steam plants for storage screenings. In October prices showed a boost to \$3.30 for prepared sizes; \$2.50 for mine-run and \$2 for screenings. During the last days of October, when it was seen that a suspension was inevitable, prices took a boost until \$4.50 was paid for lump, \$3.75 for mine-run and \$3.50 for screenings. In a few instances even higher prices were paid.

When the strike was in force the Fuel Administration was again established and federal regulated prices were enforced. These in every instance were the same as prevailed during the first month of the year.

COAL CARS SCATTERED IN OCTOBER

With the coming of the federal regulations on the distribution of coal at the end of October, coal cars were scattered from one end of the country to the other and the result was an acute car shortage at the close of the year. This condition is expected to maintain for some time and will hamper production during the early part of the New Year.

Outside of the big strike of Nov. 1, there was not a great deal of loss in production caused by small strikes, although there was about the usual quota of such shut-downs. Many causes entered into these shut-downs, among which were some local grievances, funerals of employees or in their families or disputes over scales.

Stripping operations showed up remarkably well during the year. Early in the strike arrangements were made with the employees of many of the stripping operations to continue at work, and thus some production was possible. Several additional large stripping operations were put into commission during the year and more will be developed at a later date.

General development of mines during the year was not as active as in some previous years, due largely to lack of demand. Some large deals in coal lands were reported and in some cases these deals will mean future development in drift and shaft mines. But on the whole development was not on as large a scale as during the war years.

PRINCIPAL CHANGE IN NORTHERN OHIO

One of the principal changes in the coal demand in central and northern Ohio territory which took place recently is the partial failure of the natural gas supply which has placed a heavier burden on coal. The cold winter has showed up the lessening gas supply and many householders have changed from natural gas to coal as a fuel. This means a still further demand for coal for domestic purposes.

As soon as the commission which is now in session decides to order an increase in prices, and settles the labor question, the operators, having the co-operation of the miners, will endeavor to make 1920 a banner year. Operators in this region are of the opinion that the work of the commission will be of no avail.

St. Louis Coal Trade in 1919

BY E. J. WALLACE
St. Louis, Mo.

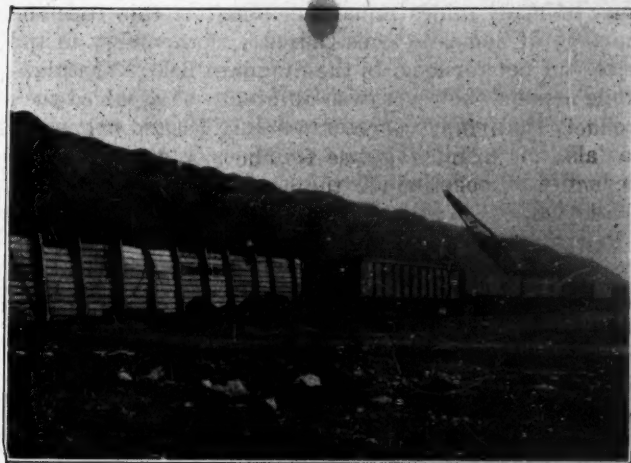
AS 1918 came to an end, as a matter of fact within a week after that eventful Nov. 11 when warfare ended for America, mines in the Illinois fields began to shut down and those mines were the forerunners of many others that "blew over" for many months of idleness. While peace brought joy to millions, it brought poverty to thousands of homes in the Midwest fields and a breaking up of perfect conditions from an operating viewpoint.

In the St. Louis territory, with its vast recent undertakings in munition and other government supply plants, the sudden let-up hit the steam trade hard. As 1919 came in inventories unearthed huge storage supplies that in some cases carried the fuel supplies for those plants up into the following May. Contracts made for government work were cancelled and all over the Middle West the steam market was at low ebb.

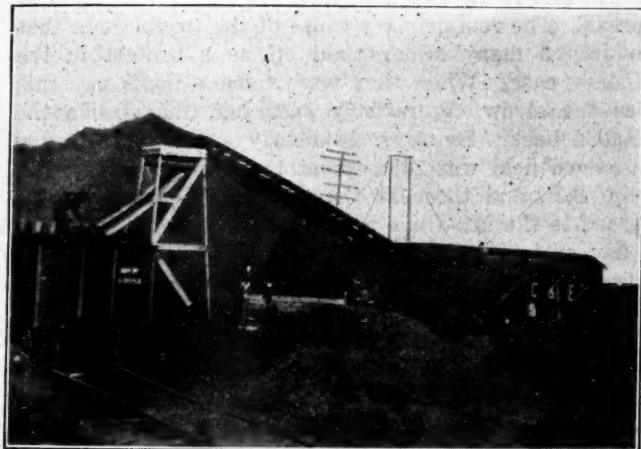
With the information that the Fuel Administration would soon lift its rulings, came a demand from dealers and operators alike that the zone restrictions be maintained in the West until spring, on account of the huge storage supplies, and certain other trade relations that had been formed. In St. Louis alone it was estimated that the retail dealers had upwards of 80,000 tons of

coal available, as well as some from Mt. Olive, there was no work in the greater part of the Standard field. Prices were cut, but coal would not move. And cars were plentiful except in the Carterville field.

Either government control of railroads or deliberate incompetency in those operating them for the government was one of the primary causes for the unfavorable coal conditions in the West. Railroad storage supplies



STEAM SHOVELS AT WORK OUTSIDE ST. LOUIS



AUTOMATIC CONVEYOR LOADERS ARE USED LOCALLY

coal in storage and then there was close to 150,000 tons of steam coal in storage piles, many of which were on fire.

Weather records showed the mildest winter on record, the winter of 1877-1878 was a mild one, but nothing compared to 1918-1919. Each week end brought hopes of a colder week to come—a prayer always for seasonable weather from retailer and operator alike, but the weeks slid into months and soon April came in with springtime. This brought no retail demand, and working hand in hand with no steam call, dismay was rampant from the miner down to the coal wagon driver.

Much discontent was evident in the Standard field and a little later on it spread to the Mt. Olive field. This smoldering fire was the flame that was to break out in the Illinois fields five or six months later, and not entirely without cause, through Governmental failure to see far enough into the future of the operating problems and causes therefrom. With plenty of Carterville

were used; contract mines were idle for months, and following this, in the later spring and summer months no storage coal was put away. Rank ignorance or maliciousness seemed to dominate the railroad fuel problems and the Government pretended to help the operator by advising the public to store coal when the railroads under government control would not store any unless they could get a little now and then for less than cost of production.

As January ended, demand eased up on Carterville and Mt. Olive. Here and there was a slight cut to move no-bills. The Baltimore & Ohio, Louisville & Nashville and Missouri Pacific R.R. began to get back to normal, with no cars and poor service on such coal as the operators could find a market for. Then the terminal at St. Louis began to fall down and February saw conditions most depressing.

An effort was made at this time to create selling agencies for all of the mines on each road so as to divide up the tonnage saleable among all of the mines. This fizzled out for many reasons, but chiefly through lack of confidence in the sponsors and in each other.

Anthracite egg began to move in, which brought grief to the dealer who had Arkansas and coke in storage. Every dealer now began to work off his storage supplies and the public generally called for new coal, to add to the trouble. Retail prices began slipping on Standard and Mt. Olive coal at this time and the retailer threw away the profit that the Government said he should have.

Approaching April 1 a surplus of coal began piling up in Franklin County, but the prices held from Williamson County worked better and sold cheaper, and the Mt. Olive and Standard coals were absolutely a drug. The mines had a hard time getting over two days a

week, with over one-half of them idle all of the time or next to it.

REACTION OF STEAM SIZES OCCURED IN JULY

As June came in there developed a reaction on the Carterville steam sizes from Franklin County and many mines had thousands of tons stored nearby. There was a general picking up of domestic sizes from this field in June, all moving to the Northwest. Car supply generally was good and at the end of the first half of the year found the railroad situation in fairly good shape, except that little railroad coal was going into storage.

The industrial situation at this time was very bad in the Mississippi Valley and steam coal unbilled was the cause of many mines remaining idle. At this time the shortage of domestic sizes caused a slight flurry in the price, but not for long, in the Standard field. The high-grade demand, however, was different. It assumed such headway that many operators on July 1 could not promise definitely a shipping date on domestic sizes, although they were in some instances idle on account of no-billed steam coal.

Prices prevailing at time of shipment of orders were not filled unless they netted the shipper a minimum of \$3.25 and as high as \$3.60. The buyer predicated his purchase on the price at time of sale, but he was a party to a contract order with equity only on the side of the Franklin County shipper, and this coal will suffer in the future as a result of the unfair attitude of a group of operators in that field.

Railroad tonnage for northern and western roads showed some improvement in July and toward the end of the month the car shortage increased. Mines in the Carterville field that were idle since the Armistice were reopened, but there was a shortage of men. This soon became prevalent throughout Illinois as other mines long since idle tried to resume.

It developed at this time that on account of the uncertainty of work and the unsatisfactory wage scale, thousands of foreign miners were going back to Europe. Native miners were leaving for the harvest fields and seeking employment elsewhere. Several went East to nonunion fields. There was an outburst of dissatisfaction over the fact that the operator was charging more every month for his coal but the miner was not getting any part of this increase.

Mines that produced 3,000 tons per day in the Carterville field were down to 1,500 tons, and this falling tonnage soon became serious for St. Louis, and the southern territory could get but little Carterville coal. No orders for the future were taken, and dealers were trying to swing the trade to Mt. Olive or Standard coal. Anthracite was unobtainable and there was no smokeless coal in sight. This caused good working time in the Mt. Olive district for domestic coal, a big tonnage of which began to move West.

The Standard field began to come into its own, so that on Aug. the general situation had almost reversed itself in a month's time, except on steam sizes, which were the cause of much worry in order to get them out of the way for domestic business.

The country call for domestic came in now and was never filled as far as high grade coal was concerned. It took several months—up to Oct. 30—to take care of the Mt. Olive and Standard business that piled up in August and some of it remained unfilled to the end of the year.

On Aug. 1 the retail price of soft coal advanced



LOCAL TRUCKS LOADING AT HUGE COKE PILE

25c. because of the 10c. per month increase in Carterville, and the bettering of conditions in the other fields. The pot of discontent among the miners began to boil over in the Standard field. Miners around Belleville who had worked one or two days a week for many months, because of no business, and others who were idle for the same reason for many months, found places in the mines but car supply now gave them not over two days a week, with no better prospects in sight. This income did not cover the cost of the barest necessities of life and it did not take long for this propaganda to spread. The real primary cause of the trouble was that on July 5 many miners laid off as a protest in the Mooney case. When they were fined a day's pay this was the straw, figuratively speaking, that broke the camel's back. By Aug. 10 nearly every mine in the Standard field was idle except those on the Mobile & Ohio R.R. and those at the south of Coulterville. It spread to the Mt. Olive field and mines would work for a day or two. These miners openly defied their state officers and asked them to resign.

With all these troubles there was plenty of coal in St. Louis. Business in other lines was bad; there was no steam demand and the public lagged along in the domestic sizes. When Sept. arrived many of the miners returned to work for a day or two, and went out again when the strike leaders lost their places in the mine. Threats were made against those who worked and this finally ended in the authorities taking a vigorous stand for law and order.

Miners reported for work at many places on days when there were no cars. When there was equipment the whole outfit would forget to report and thus there was a systematic method of striking apparently within their own law. Railroads were desperately in need of fuel and they were taking everything in sight, and with cars scarce, there was almost no commercial coal to offer. Toward the end of the month the striking miners had all returned to the same old two and three days a week and oftentimes not that. There were no eastern coals coming West. And anthracite was uncommon after June and July.

ST. LOUIS COKE PILES SAVED MIDDLE WEST

The coke piles at St. Louis saved the Middle West during the strike period. The byproduct tonnage was close to 75,000 tons, and there were about 35,000 to 40,000 tons of gashouse coke, which kept the steam plants

of St. Louis and east St. Louis going, as well as many outside places. The product was shipped out by day and night crews, and at the time the strike was settled in December there was no gashouse coke left. Orders on hand for byproduct covered the available tonnage remaining. Fortunately the 1,700 tons of gas coal required for the gas plants kept coming in daily from the East.

The fuel conservation rules were lax and brought no public relief. They did, however, cause much open rebellion and public condemnation. With the aid of a few practical coal men the Regional Committee began to get results and West Virginia smokeless coal came in at the proper time and was distributed where it would accomplish most.

Coming from the railroads, no one knew what kind of coal they were going to get, nor the cost of it. At the end of the year they had no idea what they were to pay for coal received in November and which they sold, in many cases, at low prices. The railroads played safe by laying it on as heavy as they could. Many small places got no coal because a car would cost more delivered than the local coal man was worth. Way-bill information was as "Greek to a Mexican" when sought for from the railroad. This one glaring instance of governmental supervision incompetency was manifested here,

and as a result many dealers were obliged to charge exceedingly high prices.

Nearly all the eastern coal coming West was the high-priced contract quality. Up to the end little, if any, government priced coal moved West which made the price so high that poor people could not buy it. The weather continued mild throughout all of this period up to about Dec. 15, and even after that there was no real cold weather; just cold enough to keep business going.

SITUATION BECAME ACUTE IN DECEMBER

Toward the middle of December the local coke supply began to get short and the situation became acute. Many plants put in oil, and lucky it was for the future of the coal man, for these oil burners were all pulled out before the first of the year, and coal went in again. The cost of oil was about two or three times as great as coal in most cases.

Work was resumed when the strike was called off, but the tonnage was small, growing steadily until it became close to normal at the end of the month in all fields. Many miners had drifted away, disgusted with their calling. For the first time anthracite steam sizes were coming into St. Louis for factories, but other sizes were scarce. In the Standard and Mt. Olive fields the Fuel Administration prices of last winter were in effect.

Louisville Coal Trade in 1919

BY A. W. WILLIAMS
Louisville, Ky.

THE CLOSE of the 1919 season in the coal trade finds the industry in what is said to be the most disordered condition of the war period. Conditions throughout the year have been far from satisfactory as a whole, and the outlook for 1920 is much of a gamble at the present time. Many operators are of the opinion that 1920 and 1921 represent the real reconstruction period even more than that of 1919.

In the early part of 1919 many industrial concerns were winding up the war orders. Others secured considerable domestic business that had fallen behind during the war period. With domestic demands upon various industries slackening in 1920 there may be a reduced demand for coal. One leading operator calls attention to the fact that there has been an abnormal domestic demand since the early part of the war, and an increased export demand due to conditions in Europe. However Europe will shortly start producing much more coal, which will relieve export demand somewhat, while shipping is depending more and more on fuel oil, with the result that some operators feel that the coal industry may become an even greater domestic proposition than it was before the war. There are some operators who feel that there will be an overproduction of coal if conditions return

to normal. It is pointed out that if prices at the mines are regulated by federal control, along with wage control, overproduction will be impossible for a long time to come, as many of the small operators and wagon mines will be unable to operate profitably.

Some of the smaller mining companies are now in the hands of receivers, and comparatively few companies had a really good year in 1919. The big companies with adequate machinery and equipment for fast mining of better seams of coal will be able to operate profitably probably even under existing conditions.

Before the war coal salesmen were numerous, while for the past three years they have been scarce. It is believed that with good labor and car supplies it will require six to eight months to place normal stocks of coal throughout the country, and make up for the time lost during the strike. After that there is



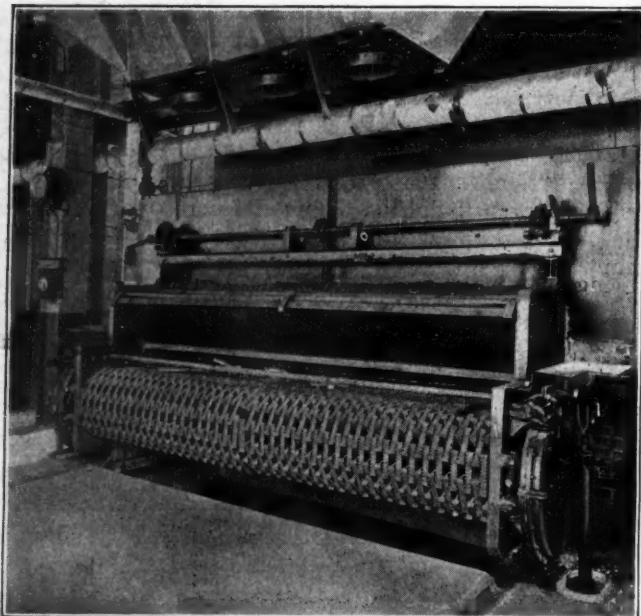
SEAM FALLS AS FAST AS COAL IS CUT

a possibility of mines being short of business, which will probably result in overproduction and price cutting.

Louisville retailers as a whole report that their records for the year show that they did not make as much money as they did under federal control in 1918. This was due largely to an effort made to stock the domestic consumer in the summer months. Unlike conditions in 1918 coal was plentiful, and all retailers

were able to secure supplies. Between competition for stocking business and price cutting on coal brought in by river, prices remained low during the stocking season. Then the mines began advancing prices sharply, and retailers did not keep up with the advances, due to the fact that a few had good stocks of river coal, or cheaply purchased coal, and held prices down. This resulted in much domestic stocking at very nearly cost, and a big reduction in profits for the retail trade as a whole.

The jobbers did not have an especially good year either for when coal was plentiful they had plenty offered, but could not sell it. In the spring they were



ONE OF THREE LARGE STOKERS AT PLANT OF STANDARD OIL CO. AT LOUISVILLE

offered block coal, and later in the year when block was in demand they could only secure the steam sizes. In the late fall when the strike became apparent the demand became heavy, and they were unable to secure any coal, as the operators could sell their production direct, and this condition has continued.

Western Kentucky operators came closer to observing federal prices during the year than operators in other sections. For several months their prices remained at their schedules, even after regulations were lifted on Feb. 1. However, eastern Kentucky, Tennessee and West Virginia as well as Indiana cut prices to such an extent that western Kentucky had to finally meet the reductions, and at one time fine screenings were selling down around 60c. a ton in spot shipments. When block prices advanced western Kentucky did not go so very much over the war time price. Eastern Kentucky advanced block prices to a \$4 per ton maximum in some sections of the Harlan field, while in other sections operators asked and got \$5.00 to \$5.50 per ton.

With the return of railroads to private control on March 1, it is believed that traffic conditions will probably be a little worse for a time, but gradually show improvement. Large car building companies claim that there will be one of the biggest car building movements in many years when railroads do finally return to private control, as the railroads realize that they are shy on equipment, and must have it.

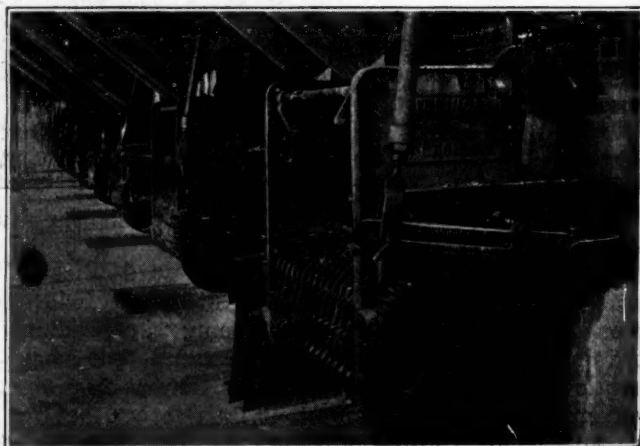
Prospects for 1920 are very uncertain. If the balance

of the winter is as mild as the first part domestic stocks will carry through nicely, and at most there can not be more than sixty days of bad weather in the year. This will result in very little early spring demand. Industrial demand should continue good for some months, especially in view of the fact that many industrial buyers fear further strike troubles and are anxious to secure adequate supplies.

River shipping didn't turn out as well during the year as had been expected. The West Kentucky Coal Co., had some trouble over low stages in the Ohio River, and shipments by water from Sturgis were not as heavy as had been expected. The Pittsburgh Coal Co., shipped rather steadily to Cincinnati and Louisville during the year, but tonnage was off, as there were no available supplies, and there was a lack of demand as long as coal could be moved by rail. Cincinnati with better combined rail and water rates into Indiana and Illinois will probably handle more river tonnage next year. A deal is pending whereby the Island Coal people may take over a large portion of the Pittsburgh Coal Company's river operations, and develop them again to something like the former size. The River and Rail Coal Co., Louisville, is planning to develop a big barging business on Hazard coal to Madison, Ind., and Ohio river points if it can secure freight rates from the Hazard field to Beattyville, Ky., where coal would be chuted to barges, and be towed via the Kentucky and Ohio Rivers. The amount of coal in tons moved by river to Cincinnati and Louisville during the year was as follows:

	—Cincinnati—		—Louisville—	
	1919	1918	1919	1918
January.....	11,613	none	1,080	none
February.....	41,775	6,164	430	none
March.....	50,868	15,709	9,462	2,800
April.....	59,821	31,336	1,600	7,594
May.....	27,502	116,851	1,260	12,855
June.....	39,906	190,647	17,046	5,251
July.....	66,110	791,532	3,210	40,357
August.....	42,387	64,707	4,586	975
September.....	197,565	69,463	1,839	5,231
October.....	No report	65,590	4,823	4,530
November.....	No report	42,098	4,112	569
Total.....		1,439,497	49,448	80,162

Western Kentucky during the year managed to secure much more favorable coal traffic rates into various sections, and has been fought "tooth and toenail" by mines on other sections, as reduced rates enabled the west Kentucky operators to go into districts with low-priced coal, in which they had been unable to operate. Eastern Kentucky operators have received better rates to south-eastern and the gulf shipping points, which have aided in securing export and bunker business.



THIRTY STOKERS IN A ROW, STANDARD OIL PLANT

The Hazard field which has been one of the youngest and fastest growing in the state is handicapped by a shortage of railroad facilities. The Louisville & Nashville R.R. into that section, known as the Eastern

CARS OF COAL SHIPPED FROM MINES ON
LOUISVILLE & NASHVILLE R.R.

	1919	1918	1917
January.....	35,864	36,632	38,326
February.....	29,705	37,254	34,950
March.....	32,069	37,750	38,908
April.....	30,619	39,345	33,520
May.....	33,930	42,288	36,867
June.....	34,288	40,775	36,765
July.....	37,211	43,706	36,283
August.....	132,232	142,230	30,885
September.....	139,494	141,992	26,653
October.....	145,348	138,737	38,448
November.....	120,715	137,017	40,291

† "50-ton car" basis.

Kentucky division has only one outlet, that being west-bound and can only handle about 450 cars of coal a day, whereas the capacity of the mines is around 765 cars, leaving the railroad capacity the controlling factor. In 1913 Perry County was producing but 25,000 tons annually, while that county alone had produced 2,120,000 tons in 1918. The Louisville & Nashville R.R. has not developed the division to meet requirements, not having sufficient sidings, or trackage heavy enough for the larger trains and locomotives.

Large consumers of coal are much interested in development of better methods for reduction of consumption, and the various trades associations today are employing experts to aid in improvement of plants. The accompanying photos show two interesting types of such installations.

In an illustration in the far column of the opposite page is shown one of three 500-hp. automatic stoker boilers, equipped with Illinois stokers, at the power plant of the Standard Oil Refinery at Louisville. Coal for these boilers is loaded to overhead magazines with an electrically operated shovel supplied by the Alfred Box Co., of Philadelphia. Ashes are automatically dropped from ash pits to empty gondola cars by air valves to sliding doors in the bottom of the ash hoppers, the cars coming in under the plant. The boiler room in this plant is on the second floor, some thirty feet above the ground level, which makes it more convenient to remove the residue of ashes automatically.

The other illustration shows 30 stokers in a row, also in the Standard Oil Refinery, at the same place. Some are, however, extremely indistinct, as the battery is so long that they fade away in the distance.

Byproduct Coke Ovens in 1919

BY C. J. RAMSBURG
Pittsburgh, Pa.

THERE were a total of 1,138 ovens added to those in operation Jan. 1, 1919. This makes a total of 10,519, or an increase of approximately 11 per cent, and since the new type of oven has a greater carbonizing capacity per unit than the general average, the increase in coking capacity amounts to practically 14 per cent. It will thus be seen that the past year has been a good one from the standpoint of conservation in coke making and the increased production of byproducts. A list of ovens now in operation is as follows:

KOPPERS OVENS

Owner or Operator	No.
Dominion Iron & Steel Co., Sydney, N. S.	120
Providence Gas Co., Providence, R. I.	40
Jones & Laughlin Steel Co., Pittsburgh, Pa.	240
Rainey-Wood Coke Co., Swedeland, Pa.	110
Carnegie Steel Co., Clairton, Pa.	128
Tennessee Coal, Iron & R.R. Co., Birmingham, Ala.	72
Total.....	710

SEMET-SOLVAY OVENS

Ford Motor Co., Detroit, Mich.	120
Mark Manufacturing Co., Indiana Harbor, Ind.	120
Lackawanna Steel Co., Buffalo, N. Y.	60
Total.....	300

OTHER TYPES OF OVENS

Wisconsin Steel Co., South Chicago, Ill.	88
Citizens Gas Co., Indianapolis, Ind.	40
Total.....	128

The following plants are in course of construction and should go into operation during 1920:

KOPPERS OVENS

Owner or Operator	No.
Jones & Laughlin Steel Co., Pittsburgh, Pa.	60
Bethlehem Steel Co., Sparrows Point, Md.	180
Donner Union Coke Corporation, Buffalo, N. Y.	150
Birmingham Coke & By-Products Co., Birmingham, Ala.	50
Domestic Coke Corporation, Fairmont, W. Va.	60
Pittsburgh Crucible Steel Co., Midland, Pa.	100
Total.....	600

SEMET-SOLVAY OVENS

Loss-Sheffield Steel & Iron Co., Birmingham, Ala.	120
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It is evident that the coming year will see a falling off in ovens going into operation. This doubtless arises from the high cost of construction. It is, however, becoming evident and undeniable that the cost of construction has come to stay for a long period. The saving to be effected has adjusted itself to the times, so that the return on the investment is as sure in 1920 as it was in 1913. The past year has seen one encouraging development, in that, the use of straight high volatile coals in coke making has been proved a success and that a decreased cost of coke per ton of iron produced, is to be a consequent fact.

The high prices for food products, particularly those whose production is greatly enhanced by the use of fixed nitrogen, makes the demand for sulphate of ammonia an active one, and insures a good price for this product.

The increased use of creosote oil for the preservation of high priced timber, the demand for pitch in building construction and the increasing use of tar felt, have made a marked increase in the demand for tar and tar products. In addition to these demands, the use of tar products in road construction is assuming enormous proportions. Practically every state in the Union is engaged in a good roads campaign and the excellent binder from coke oven tars will be used on a large number of the contemplated highways. Coupled with the demand there is a relatively decreased supply of tar because the steel industry has come to realize that one of the best fuels available for use in the open-hearth process is coke-oven tar and little of this material made available by recent coke-oven construction is coming onto the market at this time.

Benzol, toluol, and solvent naphtha are being sought in larger quantities daily by the dye manufacturer, the pharmaceutical product producer and by those industries requiring the use of high grade solvents; for

example, rubber, paint and varnish makers. At the close of the war it was expected that motor fuel would be the ultimate destination of the major portion of the benzol-plant products, but there is reason to believe that while benzol mixtures with gasoline produce a fuel much superior in generally satisfactory motor operation than straight-gasoline products, the immediate future will see decreasing proportions going into this fuel and greater proportions into chemical trade channels.

The following products can be secured in daily operation in the modern byproduct coke plant producing 1000 tons of coke per day, or a two-blast furnace coke supply plant.

Benzol.....	3,000 gal.
Toluol.....	750 gal.
Solvent naphtha.....	550 gal.
Coal tar.....	16,000 gal.
Sulphate of ammonia.....	18 tons
Surplus gas for sale or use.....	9,000,000 cu.ft.

The value of these products to-day on conservative

contract basis amounts to over \$3.50 per ton of coke, and since each modern oven produces at least 4,000 tons of coke per annum, this means a return per oven in byproducts, of \$14,000 yearly. Of course, this is not a net return, since plant investment and operating expenses must be deducted therefrom. It may be safely said, however, that never in the history of byproduct coke production has the outlook for favorable return even at the high construction costs at present obtaining, been better than on this the opening of the third decade of the twentieth century, and never has conservation been more important than in the closing days of 1919.

The need for conservation is becoming more generally recognized and the losses resulting from turning coal into coke without saving byproducts are beginning to be fully recognized, and this is increasing the interest in the byproduct oven.

Geological Survey Production Estimates

THE accompanying graph shows how 1919 output failed at all times to reach the level of the output of 1918 except during a week or two when the production was increased in 1919 by the prospect of a strike and decreased in 1918 by the probability of peace. Overlooking the strike period, the low point in 1919 was in the week ending April 5, the bathetic period of the year being between Feb. 8 and April 26. The biggest tonnage was recorded for the week ending Oct. 25, when the

ANNUAL PRODUCTION OF THE UNITED STATES, 1913-1919

Year	(Net tons)		
	Pennsylvania Anthracite	Bituminous	Total
1913.....	91,525,000	478,435,000	569,960,000
1914.....	90,821,000	422,704,000	513,525,000
1915.....	88,995,000	422,624,000	531,619,000
1916.....	87,578,000	502,520,000	590,098,000
1917.....	99,612,000	551,790,000	651,402,000
1918.....	98,826,000	579,386,000	678,212,000
1919*.....	86,200,000	458,063,000	544,263,000

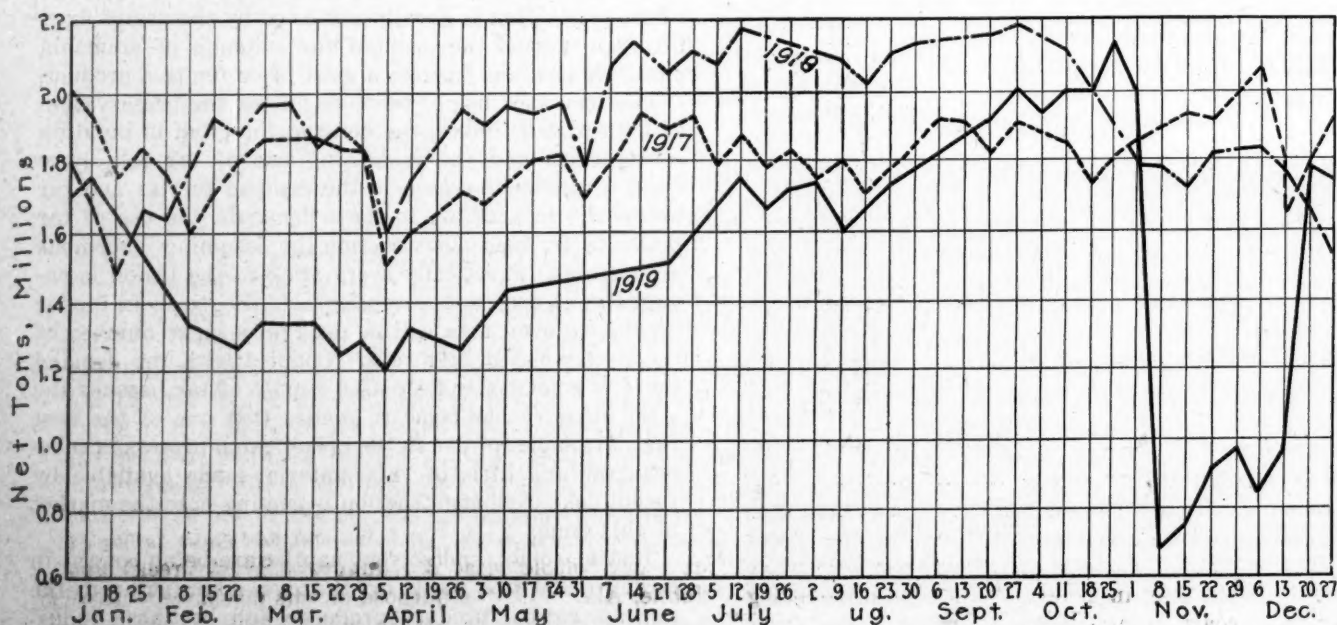
*Estimated.

MONTHLY PRODUCTION OF BITUMINOUS COAL, 1918-1919

Month	(Net tons)	
	1918	1919
January.....	42,227,000	41,487,000
February.....	43,777,000	31,566,000
March.....	48,113,000	33,719,000
April.....	46,041,000	32,164,000
May.....	50,443,000	37,547,000
June.....	51,138,000	37,054,000
July.....	54,971,000	42,698,000
August.....	55,114,000	42,883,000
September.....	51,183,000	47,402,000
October.....	52,300,000	56,243,000
November.....	43,895,000	18,688,000
December.....	40,184,000	36,612,000
Total.....	579,386,000	458,063,000

strike was approaching and every mine worker was hustling to lay by for the long layoff.

The largest output per week in 1919 came within a few thousands of tons of the maximum in 1918. But there were no such periods of sustained output as in that earlier year when patriotism and a desire to win the war made the work of mining not so much a labor as an act of devotion. The peaks of production in coal mining should certainly be ironed out if a way can be found. of accomplishing this most desirable of results.

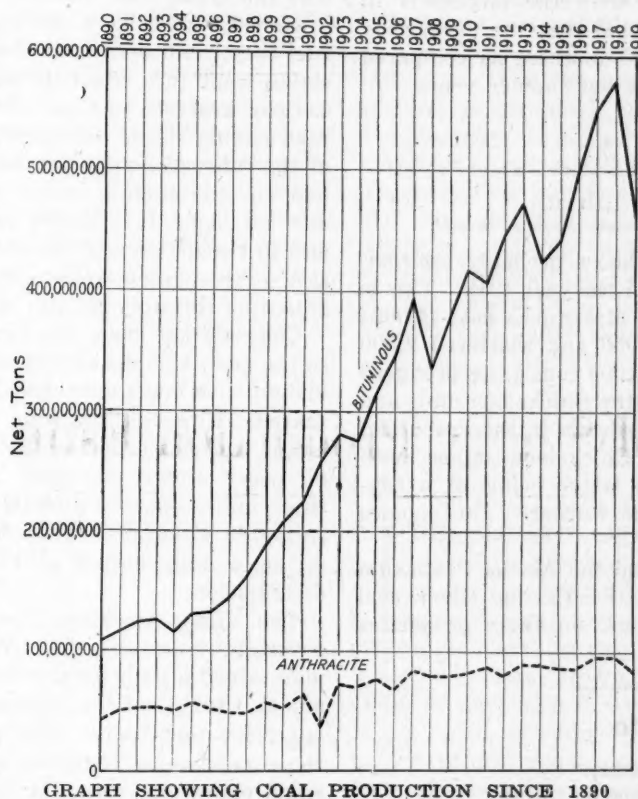


GRAPH SHOWING BITUMINOUS-COAL PRODUCTION BY WEEKS FOR THREE YEARS

Reports on Activities in Coal-Mining Fields

Made Mostly by Mine Inspectors

This, like all the issues of *Coal Age*, derives its importance from the generous assistance of the coal industry. The editors desire to express to the large number of their collaborators their keen sense of the courtesies extended and the labors thus incurred. The work was often performed under great difficulties, not the least being the closing of the affairs of the year just past. Some articles by men of leadership and authority in the various fields have been crowded out by lack of space and will appear in a later issue. Notable among these is one on the Alabama industry by Erskine Ramsay, and one by A. C. Watts on the Utah industry. To all the leaders of national thought and action whose work has found place in our columns in the past year let us give our most hearty thanks. It is their duty, as it is their pleasure, to make use of this medium for the enlightenment of



the coal-mining public. The chart herewith shows what a slump occurred in the coal business in 1919. After some years of steady progress from 1914 to the end of 1918 production suddenly decreased. It is probable that 1920 will be as active as any in the past, as stocks are low and business unusually active. To phrase the matter in other words, the year 1918 has combined with the year 1920, just entered, to steal production from 1919. The failure in 1919 will be assurance of success in the year that follows. True it was warm in the winter of the early part of 1919 and that affected the result, but 1920's opening shows low temperatures and high consumption with their usual promise to the coal industry. The variation in the coal production seems to be growing more marked than in early years. Can it be possible that this is the result largely of extended and wide-spread strikes in the coal and other industries?

Summary of Production

The production of coal by states in short tons as reported to *Coal Age* by mine inspectors and others is shown in the following table:

Alabama.....	15,750,000
Alaska.....	70,000
Colorado.....	10,307,214
Idaho.....	5,000
Illinois.....	45,693,293
Indiana.....	25,053,064
Iowa.....	7,000,000
Kansas.....	6,000,000
Kentucky.....	30,000,000
Missouri.....	5,000,000
Michigan.....	1,000,000
Montana.....	4,381,840
North Dakota.....	783,694
New Mexico.....	3,272,129
Ohio.....	35,000,000
Oklahoma.....	3,941,391
Pennsylvania (anthracite).....	85,570,469
Pennsylvania (bituminous).....	141,596,625
South Dakota.....	10,000
Tennessee.....	5,000,000
Texas.....	1,653,000
Utah.....	4,568,128
Virginia.....	7,500,000
West Virginia.....	84,803,918
Wyoming.....	7,882,682
Total.....	532,138,529

The estimates, as is natural, do not precisely total with those of the U. S. Geological Survey but they give an indication of the relative importance of the states as productive units. The loss of tonnage has been much greater in some than in others. The mines producing higher-class coals being relatively more active than the others.

Alabama

BY H. B. McLAURINE
Birmingham, Ala.

THE coal production of Alabama for the year 1919, from present estimates, will total about 16,000,000 tons. This is a decrease of approximately 3,500,000 short tons as compared with 1918. The decrease is attributed to a number of causes, viz: Shortage of labor early in the year due to men being still in the army; lack of cars; strike and the failure of miners to promptly return to work after the strike was called off.

Many improvements have been made during the year at different plants, notwithstanding the increased cost of material and labor.

The fatalities are on about the same basis as 1918, and taking into account the loss of 22 lives by the explosion of gas at the Majestic Mine, April 29, the showing made is considered very good.

The development of the Warrior River proposition has recently assumed definite shape. The Port of Birmingham Company has been organized on a basis of \$200,000 capital stock, paid in, and adequate facilities are being completed at Birmingham (Short Creek) and Mobile, Ala. It is the purpose of this company to issue warehouse receipts on coal in carload and barge lots, as well as other classes of merchandise, which receipts can

be used as collateral at banks and provide means for the operation expenses should there be any lack of market. Of course the larger mines on the Warrior will build their own tipples on the river and load at the mine.

Now that the wage dispute with the miners is in process of settlement it is expected that the production for 1920 will show a substantial increase as compared with 1917 and 1918, which were our banner years.

Alaska

BY SUMNER S. SMITH

Alaskan Engineering Commission, Seattle, Wash.

THE output of coal in Alaska probably approximated 70,000 short tons for the year 1919. This is divided about as follows: Matanuska field 44,000; Cook inlet, 3,500; Nenana, 20,000 and scattered 2,500 tons. In the Matanuska field 38,000 tons were produced from the Eska mine, 4,000 from the Chickaloon mine and 2,000 from several scattered prospects in the lower end of the field. The Eska and Chickaloon mines both produced bituminous coals, the latter being of a considerably higher grade than the former. The balance was lignite.

The Bering River Coal Co. and the Alaska Petroleum & Coal Co., both situated in the Bering River coal field continued development work on their properties in the Bering River field.

Colorado

BY A. R. TIBBITS

Office of the State Mine Inspector, Denver, Colo.

THE coal production of Colorado in 1919 was 10,307,214 tons, showing a decrease of 2,350,841 tons as compared with that of 1918. Immediately after the armistice was signed, the tonnage dropped to what would have been considered normal before the war. The year began with the production steadily falling off until June when the monthly output was as low as 785,000 tons. From then on it began to rise again until in October it exceeded a million tons.

The slump in the market closed most of the numerous small mines, which the press for greater production in order to win the war, had opened in the southern field, and which were able to help materially in supplying the local trade. These did not resume operations in 1919. Nearly all these mines were wagon developments and none of them new openings.

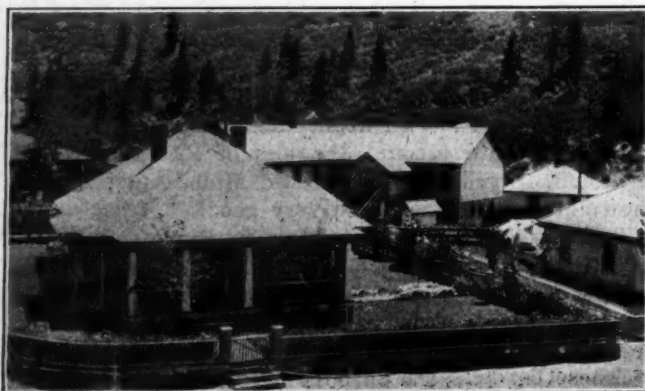
In the summer months it became evident that little coal was being bought for storage for the winter. The public was duly warned to lay in winter supplies, but little heed was given thereto, the consumer, no doubt, hoping that the selling price of coal would go down. The fall trade soon made it clear that a coal shortage prevailed, the dealers were swamped with orders for fuel they could deliver at best only in part. When the strike went into effect, it was further discovered that the coal reserves in Colorado were small, even the railroad having stored only sufficient coal to meet the needs of the railroad service for not to exceed six weeks. Nor had the surrounding states, depending chiefly on Colorado for their fuel shown any greater foresight. To add to the distress of the situation, an unusually early and severe winter set in, causing much suffering in the adjoining territory as also at points in Colorado.

Colorado has been the locus of many labor troubles in the past, and the advent of the recent coal strike was viewed with much apprehension. A complete tie-up was feared. However, the edict of the United Mine Workers of America ordering the closing of all coal mines in all other states exempted from the general walkout those mines operating under contract with this organization in Colorado. Therefore, from the start of the strike, a daily output of 11,000 tons was assured for distribution.

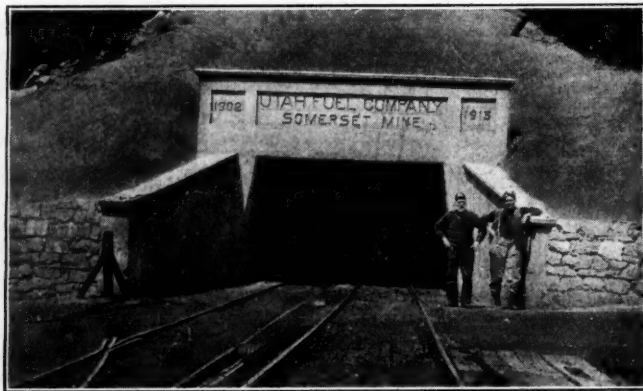
The Victor-American Fuel Co., operating mines in Fremont, Huerfano, Las Animas and Routt counties, maintained a daily production of 5,000 tons; the Colorado & Utah Coal Co., operating in Routt County, got out 1,800 tons daily. The production of the mines of these companies together with that of a number of small operations, brought up the daily average output to 11,000 tons in November, working an average of 22 days under contract.

The total production of the state for November was 622,894 tons, hence it will be seen that about 60 per cent of the production was obtained.

The Colorado Fuel and Iron Co. operates 23 mines, several of which have been closed part of the year. Five of the large producers supplying the Minnequa Steel Plant with about 5,000 tons daily, were closed in September when the steel strike shut that plant down. The product of these mines is a coking coal reserved solely for the Minnequa ovens. Fifteen mines of this company were working when the strike went into effect; they are located mostly in the southern field, and work under the Rockefeller Industrial Plan. When the strike was called, the men in most of the camps of the Colorado



Superintendent's House



SOMERSET MINE OF UTAH FUEL CO. IN COLORADO

Portal of Mine

Fuel and Iron Co. voted by large majorities to remain at work. Many of those who did quit, soon returned to the mines when they saw that there would be no hostilities and that sufficient protection was assured in case of an outbreak, of which there was at no time serious danger. Consequently by the middle of November the production of the mines of the Colorado Fuel and Iron Co. had climbed from 5,000 tons a day to 15,000 tons, or to about 80 per cent of normal.

To the 60 per cent output of coal mined during the strike, the Utah Fuel Co., operating the Somerset mine in Gunnison County, contributed a daily average of 1,000 tons and worked 25 days. This company is so fortunate as to be able to record that it did not lose a single man or working day by the strike. The camp of this company is laid out on a picturesque mountain site,

PRODUCTION OF COLORADO BY COUNTIES FOR 1919
(Showing increase or decrease, 1918-1919)

Counties	Total Tons Produced	Increase	Decrease
Boulder.....	1,135,702	.....	195,479
Delta.....	85,772	.....	9,098
El Paso.....	301,495	.....	8,427
Fremont.....	839,989	.....	36,879
Garfield.....	18,916	.....	55,088
Gunnison.....	476,290	.....	175,705
Huerfano.....	1,955,011	.....	665,374
Jackson.....	51,683	.....	32,821
Jefferson.....	139,011	13,201	.....
La Plata.....	115,341	.....	25,699
Las Animas.....	3,279,753	.....	1,169,428
Mesa.....	100,591	.....	119,778
Moffat.....	1,580	1,032	.....
Montezuma.....	1,426	.....	501
Montrose.....	437	.....	583
Ouray.....	77	.....	564
Pitkin.....	8,593	.....	21,961
Rio Blanco.....	5,620	822	.....
Routt.....	1,149,196	186,505	.....
Weld.....	640,731	.....	35,016
Total.....	10,307,214	.....	.....
Decrease, 1919.....	.....	2,350,841 tons	.....
Average number of men employed in and about the mines, 12,500.	.....	.....	.....

close to some hot springs, the water of which is conducted to a swimming pool and bath-houses for the use of the employees. The company has done everything available to make the standard of living at this camp conform to the best American ideal, supplying the camp with a good school, playgrounds, church, club house, well built tenant houses furnished with water for both domestic and irrigation purposes. In addition, the mine itself is one of the best equipped and most up to date in the state.

At the mines of Boulder and Weld counties in the northern field, where only lignite is produced, the strike was more effective. While few of the mines in this district are working under contract, at least none of the large mines of which the Rocky Mountain Fuel Co. operates ten, and the National Fuel Co. two, the organization has here a stronger following than anywhere else in the state. Despite this fact, however, Boulder was able to produce 42 per cent of its normal output and Weld County 31 per cent. In Routt County, all the mines with the exception of those of one large company, operate under contract. In November this county produced 88,628 tons against 117,602 tons in October.

In summing up the effects the strike had on the coal production in Colorado, it can be safely said that it cost the industry about 42 per cent of what would have been the normal output had there been no strike. Another factor hampering the tonnage was a car shortage, cars being moved very slowly, thus congesting traffic and causing many mines to lie idle waiting for empties.

While Colorado produced almost enough coal for home consumption, the urgent needs of other parts of the country necessitated shipping it out of the state, and in common with other regions, Colorado suffered the rigid curtailment of fuel and light enforced elsewhere.

The strike has also shown that the labor situation in Colorado is better than in former years. Labor has less of a grievance. There is no doubt, that the Rockefeller Industrial Plan has been the means of materially improving the situation. All the coal camps of the Colorado Fuel and Iron Co. working under this plan, show a decided uplift in the standard of living and a better understanding has been created between the employees and the mine officials. The fact that so many of the employees working under this plan refused to go out on strike, shows that it has vital merit. The conclusion is that better living conditions and a sincere effort towards fair and just treatment of the workmen have done much towards conciliation.

Idaho

BY R. N. BELL

State Mine Inspector, Boise, Idaho

THE coal resources of Idaho are more conspicuous for their absence than for their presence. The rugged mountain topography which prevails over a large portion of this state is largely accompanied by crystalline metal-bearing formations and lava flows, and while our mine production ranks second among the states of the Union in its yield of lead and a close second in its yield of silver values, the bulk of our quite important coal requirements, running into several millions of tons a year, have previously all been imported from the adjoining states of Wyoming and Utah and our total coal production of 5,000 tons for 1919 is the record output so far.

Near the eastern border of Idaho a small area of the cretaceous coal-bearing formations of Wyoming extend over the Idaho state line. Within this area some promising coal prospects have been discovered recently. Only one of these, however—the property of the Idaho Coal Mines Co.—has so far been developed to a commercial stage.

WAR HELD UP PROGRESS OF IDAHO COAL MINE

This enterprise has been held up throughout the greater part of the year because of financial difficulties brought about by the termination of the war. Recently, however, these financial troubles have been adjusted but the enterprise was further interrupted by the jockeying tactics of the railway administration and the local railway authorities, in their tardiness in completing a railway spur to these interesting coal deposits which are situated 10 miles west of Driggs, the county seat of Teton County.

A railway spur had been under construction to the mines with the track laid for 7 mi., the grade finished to the mine and material on hand for the completion of the track. Because of the disastrous coal famine pressure was brought to bear by the Governor and other state authorities, and the work of laying the remaining three miles of steel has recently been undertaken and should be completed to the mine shortly.

These deposits are situated in a foothill country at an elevation of 7,000 ft. above sea level and consist of

a series of steeply pitching parallel beds of high grade bituminous coal carrying the following general average analysis, according to numerous tests by state and Federal authorities.

	Per Cent
Moisture	3.60
Volatile matter	41.50
Fixed carbon	52.20
Ash	2.30
Sulphur .....	.40

There are nine parallel beds in the series with intervening spaces taken up with hard sandstone and shale formations varying from 100 to 500 ft. thick. These beds themselves vary in thickness from 30 in. to 12 ft. of clean coal. They have been proven by careful survey and surface cross course prospecting to be persistent for two miles. The principal development has been performed on one 5-ft. and one 10-ft. bed. The 5-ft. bed has been opened by a crosscut tunnel at the 100 ft. level and entries driven along its course for 3,000 ft.

IDAHO HAS A GOOD MINE IN OPERATION

From this shallow development 30,000 tons of coal has been produced and sold to local wagon-haul market. An incline shaft 500 ft. deep has been extended down on the bed in the center of this shallow development and a new entry with systematic accompanying air courses opened for 1,000 ft. in length, driven at that level, from which 10,000 tons of coal has been broken down and is now ready to be drawn through the chutes and hoisted to the surface as soon as the railroad track is completed and shipping facilities thus afforded.

This development is well equipped with hoisting apparatus, Sirocco fan air compressor and punching machines, and good tippie facilities. It is situated half a mile from the end of the railroad track to which point the coal will have to be delivered temporarily in sleds.

On the 10-ft. bed, which is cut by a narrow gulch, adit entries have been driven 500 ft. in each direction to a face depth of 200 ft., and a considerable supply of coal has been extracted for shipment. At the railway terminal a drainage and ventilation tunnel 7 x 8 ft. has been started and is already in 600 ft. This long crosscut will be driven 6,000 ft. and is designed to cut the whole series of coal beds at depths on their dip varying from 500 to 900 ft. This should greatly facilitate their exploitation and subsequent operation. A complete plant of machinery is already on the ground for driving this tunnel and for the railway bunkers and tippie equipment that will be quickly put in shape for a daily capacity of 1,000 tons.

The engineering estimates of the resources of this property down to this tunnel level are conservatively placed at ten million tons. The steep pitch of these beds (about 50 deg.) has resulted in considerable slip movement on the coal and in mining considerable slack is produced. The coal, however, has exceptional steaming qualities and with good roof and careful mining a substantial proportion of lump coal can be produced.

This property is immediately adjacent to the most extensive agricultural region of Idaho and to the rapidly expanding sugar beet industry which is an extensive user of slack coal and since the other sources of supply are fully 250 miles distant, this property will enjoy an extensive home market and a decided railway freight advantage. Its fuller development should afford a profitable and desirable coal mining enterprise for Idaho.

Illinois

BY JOSEPH C. THOMPSON

Director Department of Mines and Minerals, Springfield, Ill.

During the calendar year 1919 several factors entered into and influenced the production of coal in Illinois in an adverse manner. Among these was the coal strike in the bituminous field which practically shut down all shipping mines for a period of six weeks.

It is estimated that the production from shipping mines would have been 57,993,293 tons with 1,300,000 tons additional from local mines had there been no strike. The loss attributable to the strike amounted to 8½ million tons during November and 5 million tons dur-



TIPPLE, SUPERIOR COAL CO., GILLESPIE, ILL.

ing December. Thus the total loss in output as a result of the strike is estimated as being 13½ million tons, while the actual output will be about 45,693,293 tons.

During the year Illinois was extremely fortunate in not having any serious accidents to reduce the output much below normal. Fortunately also the mines were started up after the strike, and in spite of the fact that this resumption took place at the most dangerous period of the year no accidents of a serious nature have occurred at any of the mines of the state. Furthermore it is not anticipated that any such will occur now because normal working conditions have been resumed and the roads are thoroughly sprinkled and kept moist in spite of cold weather.

Indiana

BY CAIRY LITTLEJOHN

State Mine Inspector, Indianapolis, Ind.

THE coal mining industry of Indiana for the fiscal year ending Sept. 30, 1919, did not assume such proportions as in the preceding year owing, no doubt, to the unsettled condition of the country following the signing of the armistice.

Consumers of coal thought, as they with reason had a right to think, that wartime prices for fuel would

recede from the high figures set by the fuel administration. Those engaged in the production of war material required some time to rearrange their plants for the production of peacetime commodities. The anticipated fall in prices did not materialize; but, on the contrary the prices of nearly everything necessary to the maintenance of a family took an upward swing and this fact created universal dissatisfaction among those whose wages had been fixed at a stipulated price by the government.

This dissatisfaction manifested itself in numerous minor strikes, most of which were unauthorized by the officials of the labor organizations to which the men belonged. The mining industry was affected along with others. The dissatisfaction resulting from the continuation of what is called the Washington agreement between the operators and miners culminated in the nation-wide strike which became effective Nov. 1, 1919.

As to the merits of either side of the controversies between the operators, the miners and the general public I have no desire to express an opinion. It is believed, however, that the general strike will have been of incalculable value to the general public if we profit by the experience gained during this controversy. It should awaken the people of the country as never before to the importance of the coal-mining industry, affecting as it does, every phase of our industrial life. From the experience just passed through there should come some fruitful and well-needed legislation governing industrial disputes.

The total production of coal in Indiana during the year was: block coal 339,247 short tons; bituminous, 24,713,817 short tons. The number of mines in operation employing ten or more men was 222. The number of men employed was: outside day and monthly men 3,121, inside day and monthly men 7,824, machine runners and helpers 1,362, loaders 7,654, pick men 10,051.

The distribution of coal was as follows: To Indiana 13,305,940 tons, other states 8,319,806 tons. The total number of days worked was 33,593, total number of days idle 22,040½. The causes for the loss of time and the number of days lost were: On account of no orders 15,193, no cars 2,952, strikes 639, funerals 87, other causes 3,169½.

During the year there were 75 fatal accidents at the mines employing ten or more men and 4 fatalities at mines employing less than ten men. There were 344 serious accidents, 1,316 minor accidents reported to the Inspection Department.

The causes of the fatal accidents were divided as follows: Falls of coal 2, falls of slate and rock 35, mine cars and motors 19, explosions, powder, windy shots and gas 12, miscellaneous 7.

Iowa

By L. E. STAMM

Secretary, Iowa Mine Inspectors, Des Moines, Iowa

CONDITIONS in the Iowa coal industry were not as satisfactory in 1919 in many respects as in preceding years. The coal business of the State was rather unstable most of the time. Conditions generally in this State during the latter part of each year influence and affect the coal business for the first few months of the next year. This was notably so during the latter part of 1918. The stocking of domestic coal was urged early in that year, on account of the war

and other conditions affecting the production and transportation of fuel. The result was that in nearly every town and city of the State large stocks of coal were laid in early.

Had the weather been normal perhaps the large stocking of fuel would not have affected the industry, but a warm period about the first of the year caused a falling off in the demand for coal, so that in January, 1919, just at the time when the mines should have been the busiest, they were only working part time. This caused a big decline in production for that month. February and March were much better but their production was not sufficient to offset the January loss.

All during the summer of 1919 the mines doing a railroad business, that is, selling their output for railroad use, were working but a few days each week as the roads had persistently refused to enter into contracts for railroad coal at the prices asked by the Iowa coal operators, and were only taking necessary fuel at the old contract price.

August and September were usually good months for the Iowa coal mines since at this time the demand is largely for shipment for domestic use. Dealers in all the cities and towns at that time begin to order coal, and the mines are kept busy with no loss in time. October proved a still better month so far as production was concerned as it was generally understood that in case the miners did not get an increased wage at the conferences being held between the miners and operators in the east, that the mines would close down on Nov. 1 until some adjustment in wages was made.

STRIKE LAID MINES IDLE SIX MONTHS

The wage conference proved unproductive for the miners and all the mines in Iowa, with the exception of a few small local operations employing nonunion miners, were closed on the last day of October. The mines did not resume operations until Dec. 12 and then with only a part of their employees, so that it was not until Dec. 15 that full operations were in swing. This suspension of the Iowa mines for a month and a half occurring at a time when these operations are busiest will materially affect the production for the year 1919.

The last half of December saw every mine in Iowa running at full speed, but the output for the year will no doubt be materially lessened because of the month and a half lost while the miners strike was on. The mine inspectors' office collects the returns for the year from the operators sending out the blanks for that purpose on Jan. 1 and it is usually about the last of the month before the full returns are in, so that any estimate made at this time covering the 1919 production all things considered would be hard to make accurately. I believe, however, that the production for the year will fall off a million and perhaps a million and a half tons from that of previous years. This would make the 1919 production about 7,000,000 tons.

Iowa produces annually around 8 million tons of coal. About 240 mines are in operation in the State and approximately 15,000 miners are given employment in and around the mines. Coal is now produced in 22 counties in the State, but perhaps some four or five counties produce the greater part of the tonnage. Formerly as many as 18,000 men were employed annually in and around the mines, but in 1917 many of these men were called into service in the army and navy, others went to other fields, and in 1919 after the armistice

was signed many foreigners working in the mines returned to Europe so that the number of men working in the mines has been reduced somewhat in recent years. The introduction of mining machines however, has kept the production at about the same number of tons annually.

In 1918 the coal mines of Iowa produced 8,219,133 tons of coal, and gave employment to 14,563 men. A number of new mines that will be large producers have recently been opened in different coal producing counties. In Marion County the Greater Mammoth Vein Coal Co. has opened a new mine near Pershing which bids fair to become the largest producer in the county. Other new developments have been made in this county and recently the production of the county has increased wonderfully.

In Lucas County the Iowa-Nebraska Coal Co. has recently opened a large field and this with the extensions of the Iowa Central Coal Co., will largely increase the production of Lucas County for the coming year. In Dallas County the Norwood-White Coal Co. has opened a new field near Moran and will develop one of the largest mines in the state. Another big company is also considering the opening of a big mine in this county. In Polk County a number of new mines have been developed in the past year. These for the present are engaged in supplying the large local demand for coal in Des Moines and vicinity. Monroe, the largest coal producing county in the state, will also see some new development this coming year. With all of this activity the year 1920 should be a good one in the Iowa coal industry, barring of course unforeseen and uncertain difficulties such as labor troubles.

Labor troubles scarcely deserve attention in Iowa, as they are few. Some difficulty arises occasionally as to the interpretation of the terms of the agreement between the miners and operators and mining operations at the mines where misunderstandings occur are suspended until the slight differences are adjusted, but these difficulties are so infrequent as to be hardly worth mentioning, and are scarcely to be classed as labor troubles. If no further labor troubles occur in the central competitive coal field we look for a good year in coal production in this state for 1920.

Kansas

BY JAMES SHERWOOD

State Mine Inspector, Pittsburg, Kan.

THE Kansas coal field is located principally in Crawford and Cherokee Counties in the extreme southeastern portion of the state. Pittsburg is the center of this coal field. The population of Crawford County is about 62,000, while Cherokee County has a population of about 35,000. Nearly 10,000 miners are employed in this field in Kansas. During the years of 1917 and 1918 about 7,250,000 tons of coal were produced each year. However, during the year 1919 the production will be decreased materially by reason of strikes.

The mines of the Central Coal & Coke Co., as well as its lessees were idle about two weeks in the spring on account of a strike. They resumed operations for a short time, the employees being again called out July 16, 1919, by the district officials of the United Mines Workers. They were only recently preparing to start operations again and it is estimated that a total

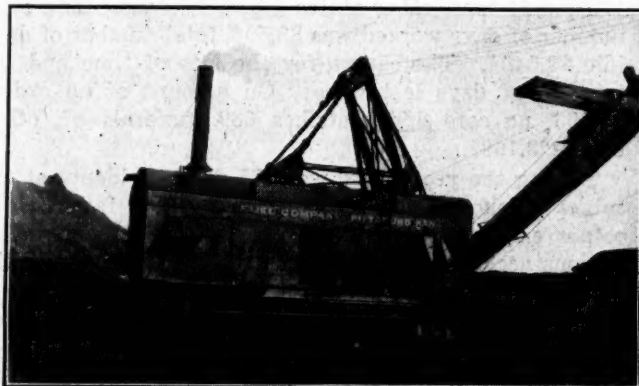
output of over 500,000 tons was lost on account of this strike.

The Domestic Fuel Co.'s employees have also been on strike since July 16, 1919, and it is estimated that approximately 40,000 tons were lost on account of this strike. It is calculated that the miners lost approximately \$1,500,000 in wages on account of these strikes and that their organization paid strike benefits in an aggregate of approximately \$215,000.

The mine workers paid no strike benefits for the two weeks shut down in the spring at the Central Mines nor did they pay benefits for the first 30 days of the strike called on July 16. The strike at these mines affected approximately 1,600 men. These strikes drifted along through the year until the general strike was called on Nov. 1, 1919.

When the general strike was called, Governor Allen foresaw the suffering that would occur during the winter from a shortage of coal and immediately began a campaign to bring the miners and operators together by agreement. Failing in this, he threw the coal mines into the hands of receivers through proceedings in the state supreme court, and C. D. Sample, Mayor of Fort Scott, and Ben S. Gaitskill, an attorney of Girard, Kan., were appointed as receivers.

Governor Allen then made a tour through the coal fields of southeastern Kansas, speaking directly to the miners in the camps and urging them to return to work, upon the basis obtaining Oct. 31, 1919, prior to the general strike, contingent upon a wage contract to be made by the receivers the same as would be agreed upon at the conference then being held in Washington, with the guarantee that if an agreement was not reached in Washington before Jan. 1, 1920, that he and the receivers would make a contract with the miners in this district based upon the investigation to be made by him and the receivers during the



STRIPPING SHOVEL AT CHICOPEE, KAN.

interim between then and Jan. 1, 1920, in any event the contract to be retro-active from the day they returned to work and guaranteeing an increase.

The miners did not return to work at the time specified by the Governor, and he accordingly issued a call for volunteers and ordered troops to the fields. Volunteers from all walks of life, including business and professional men, college students and ex-service men responded in large numbers. About 1,000 volunteers were shipped to the coal fields and placed at work in the large strip pit mines in this field, of which there are about 30. Here under the direction of the receivers, they mined coal to alleviate the shortage.

The volunteers began work about the first of December and produced approximately 6,500 tons of coal. The work of the receivers was greatly hampered by the run-down condition of the machinery at these strip-pit mines and the inclement weather during the time the volunteers were in the field. Extremely cold and stormy weather met them at every turn.

On Dec. 15, the union miners in Kansas for the most part returned to work under the agreement recommended by President Wilson and concurred in by the mine workers. However, the mines of the Central Coal & Coke Co. and its lessees still remained idle as well as those of the Domestic Fuel Co., under the original order of the district officials of the United Mine Workers. As the records show, Mr. Howat was called before Judge Anderson and agreed to start these mines to work at once, and the local officials of the Mine Workers have now agreed to and ordered the men back to work, and the mines were to start hoisting coal Dec. 30, 1919.

The maximum production was obtained during the years 1917 and 1918 in Kansas, but this will be reduced this year by over a million tons, mostly on account of the strikes. It is believed that the production will not exceed six million tons this year.

Conditions are rapidly returning to normal, however, and it is hoped that steady employment for the miners and a maximum production of coal will be the result of the combined efforts of the mine workers and operators in Kansas in 1920.

Under the supervision of James Sherwood who was appointed State Mine Inspector June 1, 1919, to succeed Fred Green, much has been done for the health and safety of the miners. Monthly bulletins have been issued relating to the principal details of the most serious accidents and offering a method for the prevention of similar mishaps. These bulletins are mailed to both the operators and miners. The organization of safety committees at each mine has been attempted and this work was fairly under way when the strike was called. This has practically "killed" this effort and it will have to be renewed from the beginning.

First aid and mine rescue work has also been strongly advocated and taught in Kansas, and the southern field is making rapid strides toward the front in these respects. A first aid team representing Kansas was sent to the national contest in Pittsburgh, Pa., last fall and made a creditable showing. The coal companies are also advancing rapidly along these lines, and the Western Coal & Mining Co. has established the first company-owned mine rescue station in Kansas. This is equipped with Gibbs mine rescue apparatus and the necessary supplies for such a station.

Up to and including Dec. 29, 26 fatalities and two deaths from natural causes occurred in the Kansas mines. These were attributed to the following causes:

Falling down shaft	1	Runaway car at steam shovel tippie	1
Death in mine from natural causes	2	Falling over pit car	1
Explosions from shots	3	Object falling down shaft	1
Falls of rock	15	Fumes from gasoline engine	2
Burned by gas	1	Machinery at steam shovel mine	1

By months, the fatalities in the mines were as follows:

January	5	July	3
February	2	August	2
March	3	September	2
April	3	October	2
May	3	November	2
June	2	December	1

Kentucky

By C. J. NORWOOD

State Mine Inspector, Lexington, Ky.

OUTPUT returns for the State of Kentucky for the year 1919 are at present so ragged and fragmentary as to render any accurate estimate of tonnage produced out of the question. Indications, however, point to a material decrease in production as compared to that of 1918 which exceeded 31½ million tons.

The actual net decrease will quite possibly be less than some people have assumed, since the output of some new companies has in large measure made up for the losses recorded by some older firms, while some of the established producers have practically maintained their previously established records. A rough guess would place the 1919 output, therefore, at approximately 30 million tons or thereabout.

A slump occurred at a number of mines in the spring and was attributed to an unusually reduced or depressed market. The general strike occurring on Nov. 1, involving as it did 20,000 to 25,000 miners, adversely affected production even in some unorganized territory until early December, while complaints of car shortage were numerous during the latter month as they were in numerous other states.

Despite unsettled conditions the development of new territory and the expansion of operations projected or begun in 1918 was pursued vigorously during the year just closed. This was especially the case in Harlan, Letcher, Perry and Pike Counties. A conspicuous example of this policy or practice is afforded by the mines of the U. S. Coal & Coke Co., at Lynch in Harlan County. This company increased its output over that of 1918 by nearly 600,000 tons in the eleven months ending Dec. 1, 1919.

The general outlook upon the future taken in mining circles is cheerful, provided no adverse state legislation is enacted. There are disturbing rumors of a contemplated hard drive to unionize all Eastern-field mines regardless of all wage or other considerations, thus disregarding even the wishes of the workmen involved in the territory to be unionized.

During the past year there have been no large mine accidents or disasters and no serious mine fires have occurred.

Michigan

By M. D. KIRBY

Chief Clerk, Department of Labor, Lansing, Mich.

MICHIGAN mines each year yield approximately 1,500,000 tons of coal, practically all of which is mined in the Saginaw Valley and its environs. A single mine outside of this immediate district, operated by the B. S. K. Coal Co. of Albion, mines about 100 tons daily.

The St. Charles mine of the Robert Gage Coal Co. is the largest producing mine in Michigan, turning out about 1,250 tons a day.

The following mines have been abandoned during the past year: Robert Gage Coal Mine No. 6; Wolverine Coal Mine No. 3; both of Bay County; the What Cheer Coal Co. No. 2, located in Genesee County; the Robert Gage Coal Co. No. 2 and No. 9, and the Chappel & Fordney Mine No. 2 of Saginaw County and the Liberty Coal Corporation of Shiawassee County.

CONSOLIDATED YEARLY REPORT OF THE COAL MINES OF MICHIGAN
DEC. 1, 1918 TO NOV. 30, 1919

Months	Number of Mines Operating	Men Employed	Average Hours Worked per Day	Average Days Worked per Month	Average Daily Wages (Dollars)	Aggregate Monthly Wages (Dollars)	Mines Using Powder	Powder Used (Kegs)	Pick-Mined Coal Produced (Tons)	Machine-Mined Coal Produced (Tons)	Total Cost of Output (Dollars)	Average Cost per Ton (Dollars)
22 December.....	1918	2,553	8	16.0	6.82	280,818.87	18	1,130	10,313	99,022	418,596.12	3.83
20 January.....	1919	2,434	8	18.4	6.13	274,662.90	18	1,112	5,662	102,492	375,890.28	3.48
14 February.....		2,047	8	15.8	6.49	210,519.22	13	833	3,087	79,183	299,035.29	3.64
13 March.....		2,003	8	15.0	6.31	189,929.89	12	760	4,532	74,265	271,790.72	3.45
6 April.....		602	8	21.6	5.86	76,415.88	5	305	2,571	27,397	108,052.66	3.61
12 May.....		1,556	8	9.7	6.28	94,590.69	10	330	2,530	30,660	153,569.69	4.63
11 June.....		1,590	8	17.4	6.51	175,284.40	10	638	3,022	68,227	249,622.46	3.50
12 July.....		1,828	8	20.8	6.11	232,721.54	11	1,012	7,741	93,665	314,284.53	3.10
14 August.....		1,817	8	22.0	6.25	249,813.65	13	1,005	7,284	101,098	334,949.60	3.09
16 September.....		2,011	8	21.1	6.37	270,277.84	15	1,090	9,862	104,075	369,111.73	3.24
16 October.....		2,050	8	25.1	5.93	305,399.40	15	1,208	8,483	125,989	424,987.10	3.16
3 November.....		39	8	10.8	5.32	2,240.98	2	10	203	240	3,156.55	7.12
Aggregate.....						2,362,675.26	..	9,413	65,290	906,313	3,323,046.73	..
Average.....		8	18.3	6.29			..					3.42

Missouri

BY GEO. HILL

Chief Mine Inspector, Bevier, Mo.

There was never a time in the history of mining in Missouri when such unfavorable conditions prevailed as during the year 1919. It seems there was a general unrest among all concerned in the production of coal. The tonnage has fallen short of past records during the year one-half million tons while I estimate that the total output will not exceed 5,000,000 tons.

The Central Coal & Coke Co. mines have been on strike the latter part of the year. These mines are the largest producers in the state, Mine No. 24 of this company being the heaviest single producer at the present time, the output being approximately 1,000 tons per day. This company sunk Mine No. 68 this year about three miles southeast of Bevier, Mo., on 1,000 acres of good coal, the thickness of the bed being about 5 ft. This mine which is being opened on the panel system eventually should be the largest producer in the state and hoist 2,000 tons per day.

During the general strike which occurred on Nov. 1, the state institutions were suffering for the want of coal, and it became necessary for the Governor of Missouri to take over the strip mines in Barton County and work them with volunteer labor and I expect that if the strike had not been settled one week after taking over the mines Missouri by this means would have been producing considerable coal.

In the strip mines of Barton County the coal bed is overlaid with about 20 ft. of surface which is easily removed with large steam shovels. These mines produce annually about half a million tons. With labor troubles and a shortage of railroad cars in the early part of the year the industry in Missouri has operated under conditions unfavorable to both miner and operator.

Montana

BY G. W. GRIFFIN

Chief Coal Inspector, Helena, Mont.

TAKING the year reported as a whole it shows that the coal business in Montana was poor. After the signing of the armistice the coal business suddenly dropped off, and some mines shut down altogether, while others worked from $\frac{1}{2}$ to $\frac{3}{4}$ time. A few did somewhat better, but all mines were affected adversely by the halting of industrial activity.

The following figures are for the fiscal year ending June 30, 1919, for the coal mines in Montana:

Number of mines reporting.....	39
Machine operators employed.....	171
Loaders employed.....	808
Miners employed.....	1,550
Inside day men employed.....	1,201
Outside day men employed.....	709
Total men employed.....	4,434
Tons of coal produced.....	4,381,840
Tons produced per life lost.....	234,422
Number of men employed per fatal accident.....	261
Number of men killed per 1000 men employed.....	3
Number of kegs of powder used.....	71,106
Tons of coal mined by machines.....	2,286,758
Tons of coal mined by hand.....	2,095,082
Value.....	\$9,179,301.51
Number of lives lost.....	17

The first half of the year, that is to say from June to the eleventh of November, 1918, when the armistice was signed, business was extremely good and all concerned were doing their best to increase production. The miners as a whole nobly responded to the call of President Wilson for more coal.

During the past year we have had several visits of the United States First Aid car, and much good has resulted from these efforts. While this is true, yet I am sorry to say that interest in first aid work has been allowed to wane in many coal camps.

I think that this can be explained, in part at least by the fact that a tremendous effort was exerted to increase production in all the mines during the war, while war conditions in general so occupied the minds of the people engaged in mining that they thought of little else than their daily tasks.

Now that the war is ended all are hoping that there will be a determined effort made on the part of both the mine owners and the miners to push first aid work, for there can be no question but that much good has been accomplished by this means, and doubtless many lives have been saved both directly, and indirectly, where this subject has been followed up with persistence and good judgment.

In Montana, as in all other states, there are altogether too many accidents occurring from day to day and we have become so accustomed to them that there is great danger of our regarding them as a necessary part of the business. This ought not to be so, and it must not be so, for upon analyzing our mine accidents we are forced to the conclusion that many of them could have been prevented by the exercise of greater care on the part of the victims and the injured men, while in some cases greater care should have been exercised by mine officials in the performance of their important duties.

New Mexico

By J. E. SHERIDAN

State Inspector of Mines, Silver City, N. M.

COMPARING the production of the coal mines during the past year, amounting to 3,272,129 tons, with the production of the preceding year or 4,037,726 tons, there is shown a decrease of 765,597, or more than three-quarters of a million tons. Upon perusal of the statistics and comparison of production by counties in the report of this office for the preceding year, it will be seen that the decrease in production of the state is fully accounted for by the decreased production of Colfax County. The record here shows a production of 3,058,639 tons in 1918, as against 2,290,258 tons in the past year, or a decrease of 767,258 tons.

Seeking now for cause of the decreased production in this county, we find that in the preceding year, 1,126,935 tons were sent to the coke ovens, and in the year just past 555,218 tons went to the coke ovens. This is a decrease of 571,717 tons and largely accounts for the falling off in production of the state.

It is thus evident, that the stagnation at the copper mines lessened the demand for coke, at the smelters both in Arizona and at El Paso, Texas. The balance of the decrease for Colfax County was the lack of orders for coal for railroad use during the months of March, April and May, when there was almost a cessation of freight traffic at times. Later on when demand for coal increased there was a scarcity of miners.

The prospects for the coal-mining industry for coming years is bright, as there is certain to be increased demand for the fuel from local markets as the present sparsely-settled states of Arizona, Texas and New Mexico, become more densely populated. There will also be increased demand for coal at the metal mines and smelters of Mexico.

CANNOT KEEP MINING COPPER WITHOUT MARKET

But for the immediate future, the coming year especially, there is room for much speculation as to the prosperity of the coal industry. At present the output of the copper mines of the country is accumulating in the hands of the copper-mining companies, there being no active market for the metal. How long this lack of demand will continue is problematical; but how long the copper companies can finance the mining, smelting, refining and storing of the metal is more readily opined. The consensus of opinion is that if some relief is not afforded, through the marketing of copper at least to keep pace with production, there will be a further decrease in production of copper, and a correspondingly lessened demand for coke.

It is not at all probable that there will be lack of demand for coal, from the railroads, for engine fuel, unless disturbed industrial conditions among the employees should hamper the operation of these carriers. The copper-mining industry and the railroads are the two principal consumers of coal-mine products, which it is necessary to consider before production.

Now must be considered the problem of production. The first and most serious consideration is the scarcity of miners to dig the coal. In the early part of the last decade the majority of coal miners in New Mexico were natives of the Slavish states of central and southern Europe with an admixture of Austrians, Italians and men from northern Russia. For various reasons many men of these nationalities have drifted

away from the coal mines, and have been replaced by Spanish-speaking natives of Old and New Mexico.

While the average Mexican has not the robust physique of the European, yet he can be trained to be an efficient miner. And while these men will not produce as much coal from a given number of working places, yet the mines are now opened to such an extent that there are more working places than there are miners to work them. The Mexican is less turbulent by nature than the European, and unless outside influences dominate the coal camps, he will continue at work during periods of industrial unrest elsewhere and will not voluntarily initiate a sympathetic strike.

There are therefore the three factors named, exerting an influence on mining conditions—the market for the product, the miner to dig the coal, and his probable willingness to remain constantly at his work. These together influence the coal industry for good or evil in New Mexico. The fundamental factors of prosperity for the future in the coal industry are present, viz.: the vast resources of fuel, and the constancy of the market for the coal produced, at all seasons. Any abnormal conditions as to industrial unrest or lack of demand for coal from the copper mines, or from the railroads, can be of only temporary duration. Eventual continuous prosperity for the coal industry in New Mexico is thus assured.

North Dakota

By JOHN HANWELL

State Mine Inspector, Bismarck, N. D.

THE production of coal in North Dakota for the year ending Oct. 31, 1919, was slightly larger than for the year 1918, the increase being approximately 63,961 tons. In the 19 coal-producing counties of this state there were 783,694 tons of coal produced from 155 mines by an average of 1,391 men employed in and around them. There were three fatal and 19 non-fatal accidents during the year 1919. An average of 261,231½ tons per fatal accident and 41,246 tons per non-fatal accident.

The mining industry in this state is practically in its infancy and offers an immense field. Its progress in the past was stunted by lack of railroads and excessive freight rates as well as other things that have been eliminated. Mining is a profitable business and offers excellent opportunity for investment. It is apparent that mining will be an important business in this state in the near future. It will also be a benefit to the people of this and neighboring commonwealths through immense savings in the cost of fuel. It has been stated by the officials of some of the mines that they could ship their entire production to the Twin Cities and Minnesota but local demand prevents them from doing this.

I am writing this because of my familiarity with the coal situation and I am interested in the development of good mines. We need them to supply the demand for fuel: to give employment to large numbers of men; to increase the wealth of our country; to do our duty as patriotic citizens and develop the natural resources of our state, and to develop a local industry and business, that will keep profits at home which are now to a large extent being sent away to distant regions and benefiting outside capital as well as the labor employed to produce the fuel consumed within the confines of North Dakota.

Ohio

BY JEROME WATSON

Chief Deputy and Safety Commission of Mines, Columbus, Ohio

THE maximum which was reached in the coal production of Ohio for the year 1918, when the production amounted to 47,849,236 tons, was largely responsible for the great decline in the coal industry during the year just past. The beginning of 1919 found the coal markets still over-crowded—a result of the greatly increased war production. This necessarily closed a large proportion of the small mines, some permanently, others only temporarily, while the large shipping mines worked intermittently during the early part of the year, except those in eastern Ohio.

Eastern Ohio mines probably had something near a normal year as compared with 1918. Most of the Lake trade supply is shipped from this district—Lake shipments amounting to 6,188,612 tons during 1919.

All indications point to a decrease in production for the year 1919 as compared with the previous year of, at least, 26 or 27 per cent, bringing the tonnage down around the 35,000,000 mark, or perhaps lower. This, however, should the tonnage reach such a figure, is a fair record for normal times, the greatest tonnage for any one year in Ohio, prior to the war period, being 36,285,468 tons for the year 1913.

In anticipation of the miners' strike, last October, witnessed the greatest single month's production in the history of Ohio. Six full weeks' time was lost by the strike. Although the 14 per cent increase in wages became effective Dec. 1, there were but few men such as pumpers, engineers, etc., at work to profit thereby, until the strike order was rescinded Dec. 12.

The car supply was almost entirely adequate until August, when a shortage became felt, the supply for August being probably not more than 50 per cent, and for September not more than 75 per cent. By that time the cars had become widely distributed and were not returned. Perhaps another factor in the car situation was the strike of the railroad shopmen early in August, which interfered with the repairing of cars.

There was no noticeable labor shortage, and, in fact, with the exception of the six weeks' strike, apparently no reason for idleness except the lack of market for coal. The exceptional effort to produce coal during October took its almost inevitable toll of fatalities. Forty-three lives were lost in the mines of Ohio during this one month, the majority of the accidents evidently being the result of too great hurry with its contingent carelessness.

Twenty of these 43 lives were lost in the greatest mine disaster Ohio has ever experienced. This was in the nature of a fire which occurred on Oct. 29 at the Amsterdam mine, located at Amsterdam, Jefferson county, and owned by the Youghiogeny & Ohio Coal Co. of Cleveland. The fire is supposed to have been caused by an overheated bearing on an electric fan located inside the mine 800 ft. from bottom of the shaft. Twenty men trapped back of the fire were overcome by carbon monoxide and fumes before they could be rescued.

The number of fatal accidents in proportion to the tonnage produced will run considerably higher than in 1918, a contributing factor being the unusual number of accidents in which two or more persons were killed. In addition to the Amsterdam fire, there was a gas explosion in a Belmont county mine during February

which cost the lives of two men; during October a charge of dynamite was accidentally fired in a Jefferson county mine, killing two men. Also during October, three men met death in a Perry county mine as a result of a fall of roof which struck a man-trip in which they were riding.

Oklahoma

BY EDWARD BOYLE

Chief Mine Inspector, McAlester, Okla.

THE following is a report of the coal production for the State of Oklahoma for the fiscal year ended June 30, 1919.

The tonnage produced for the past year by grades was as follows:

Lump, tons.....	656,895
Nut, tons.....	131,713
Pea and slack, tons.....	368,799
Run-of-mine, tons.....	2,783,984
Total tons.....	3,941,391
The total production in 1918 was.....	4,489,064
The total production in 1919 was.....	3,941,391
Decrease in 1919, tons.....	547,673

The following table shows the gain and loss in the different grades of coal as set forth:

	1918	1919	
Lump.....	633,688	656,895	23,207 gain
Nut.....	180,035	131,713	48,322 loss
Slack.....	468,841	368,799	100,042 loss
Run-of-mine.....	3,206,500	2,783,984	422,516 loss
showing a total decrease of.....			547,673 tons

The principal output was produced in the following counties: Coal, Latimer, LeFlore, Pittsburg and Okmulgee. However, a small portion was produced in Tulsa and Wagoner Counties. Pittsburg County alone produced a net tonnage of 1,370,610 tons, this being the largest coal field in the State of Oklahoma.

To produce the foregoing tonnage required the equipment of 150 mines, employing a total of 7,946 men, inside and outside combined. With an average of 7,946 men employed in the coal fields there were 43 fatal accidents during the year, which was a slight increase over the fatalities for the fiscal year ended June 30, 1918.

An average of 170 days for the year was worked and this divided by the 52 weeks of the year shows that each man worked an average of only three and one-half (3½) working days per week.

CLASSIFICATION OF EMPLOYEES

Miners.....	3,529
Inside men.....	1,981
Outside men.....	2,436
Total.....	7,946

The average number of working days was reduced in the past fiscal year to 170 against an average of 189 for the previous fiscal year, making a loss of 19 days per man.

The number of fatal accidents per ton produced was necessarily increased on account of the fatal explosion at Rock Island No. 5 Mine, Alderson, on June 30, 1919.

TOTAL NUMBER AND CAUSES OF FATAL ACCIDENTS

Windy shots.....	3
Falls of rock.....	14
Trip wrecks.....	2
Burned by gas.....	3
Run-away trips.....	2
Falls of slate.....	1
Improper shots.....	3
Explosions.....	15
Total.....	43

NUMBER OF TONS PRODUCED FOR EACH FATAL ACCIDENT

Windy shots.....	1,131,797
Falls of rock.....	281,527
Trip wrecks.....	1,970,695
Burned by gas.....	1,313,797
Run-away trips.....	1,970,695
Falls of slate.....	3,941,391
Improper shots.....	1,313,797
Explosions.....	262,759

In obtaining the number of tons of coal produced to each keg of black powder it is necessary to reduce the amount of other explosives and dynamite to equivalent kegs of 25 lb. each, one pound of other explosives being considered as equal to 2 lb. of black powder, while one pound of dynamite was reckoned as equivalent to 2½ lb. of black powder. Therefore, allowing 26½ tons per keg would give the average tonnage per keg produced.

This report shows 7,946 men working produced an average of 495 tons per man for the fiscal year ended June 30, 1919. Placing this tonnage at the average rate of \$1.01 per ton would make the earning capacity of each miner for the year \$499.95 and adding to this the average yardage at 78c together with other dead work would make an average earning capacity, or approximate total earning of \$883.05 per man. From this must be subtracted expenditures for explosives, etc.

The grand total of all the explosives used during the year after reduction to black powder amounted to 149,570 kegs. At an average cost of \$2 per keg this would represent a total sum of \$299,140, the average cost per man being approximately \$37.68. Deducting this from his total earnings would leave a balance of \$845.37 for the fiscal year. This reduced to a monthly average would be \$70.44 per month. This approximation of cost does not include the miners' expenses for fuse, blacksmithing, oil, blasting paper, etc.

Pennsylvania

BY FRANK HALL

Department of Mines, Harrisburg, Pa.

THE year just closed has been characterized by much uncertainty because of labor conditions. The strike in the bituminous field was a highly disastrous one, not only to the mine workers and operators, but particularly to the public. The rather make-shift agreement finally entered into by the Federal Government and the coal interests will not be a preventive of further agitation tending in a similar direction.

Some time, however, it is to be hoped that the Government will be wise enough to appoint a proper commission to act with the operators and miners in keeping the great and essential coal industry reasonably active, so that the public may always have sufficient fuel, the miners fair wages and the operators reasonable profits.

During the present winter months trade will no doubt be active and the industries of the country will be amply supplied with fuel. Nor need any discomfort be apprehended in the households from lack of coal.

The present outstanding feature of the industry is the high wages paid generally to mine employees, and it is doubtful if any material reduction will be made in the future. The increased cost of production, together with the high cost of mining materials and equipment, means necessarily that the price of coal will never again reach the low levels of past years.

The production and accidents during 1918 and 1919 by districts are shown in the accompanying tables:

ANTHRACITE

District	Production Net Tons		Fatal Accidents	
	1918	1919	1918	1919
1	3,424,691	2,440,729	16	21
2	3,981,568	3,110,400	18	22
3	3,704,654	3,808,000	17	15
4	2,751,896	1,974,989	20	14
5	3,846,215	2,757,400	30	22
6	4,134,103	3,958,532	20	20
7	3,250,831	2,808,992	18	18
8	5,051,086	4,495,550	27	21
9	3,406,199	2,800,000	29	13
10	3,515,972	3,016,687	28	22
11	4,101,674	3,535,878	12	116
12	4,325,051	3,920,000	20	20
13	4,853,811	4,368,000	35	28
14	4,733,313	4,610,000	39	25
15	5,265,483	5,040,000	21	16
16	3,455,551	3,329,000	22	18
17	5,256,002	4,249,000	25	26
18	4,160,314	3,511,000	16	18
19	2,928,966	2,330,000	17	16
20	3,828,516	3,144,000	17	26
21	4,880,897	3,374,000	24	27
22	5,299,305	3,852,000	24	25
23	3,121,895	2,600,000	26	19
24	3,336,113	3,016,312	15	23
25	2,831,588	2,520,000	20	22
Totals.....	99,445,694	85,570,469	556	613

BITUMINOUS

District	Production		Fatal Accidents	
	1918	1919	1918	1919
1	6,094,636	4,000,000	16	9
2	6,484,742	6,000,000	14	14
3	4,572,959	2,000,000	11	5
4	4,401,857	4,100,000	12	2
5	7,011,189	5,824,400	20	22
6	5,352,158	4,200,000	17	10
7	6,446,507	5,195,000	21	14
8	5,156,832	3,500,000	7	3
9	7,189,948	6,150,000	12	12
10	4,224,584	3,500,000	9	11
11	6,880,298	3,500,000	12	7
12	5,414,803	3,700,000	23	7
13	3,689,449	3,000,000	9	5
14	4,877,480	4,000,000	16	8
15	5,903,241	5,000,000	10	9
16	8,867,477	8,500,000	36	39
17	5,401,047	4,000,000	15	6
18	5,341,004	4,000,000	18	11
19	5,874,682	6,000,000	20	12
20	5,029,477	4,400,000	16	22
21	7,660,627	5,678,000	25	15
22	4,474,126	4,250,000	9	6
23	7,831,192	7,300,000	18	16
24	6,078,487	5,325,425	17	19
25	6,191,735	4,643,800	17	12
26	5,627,701	5,000,000	24	10
27	5,838,972	5,000,000	14	21
28	5,273,526	3,450,000	10	10
29	6,611,624	5,380,000	26	24
30	7,205,534	5,500,000	20	24
Totals.....	177,217,194	141,596,625	494	393

In Pennsylvania during 1919 the estimated production of anthracite for the year was 85,570,469 net tons, and of bituminous 141,596,625 net tons, making a total of 227,167,094 net tons. The number of fatal accidents in the anthracite region was 613, and in the bituminous region 393, or a total for the entire state of 1006.

South Dakota

BY O. ELLERMAN

State Mine Inspector, Lead, S. D.

THE coal mines of South Dakota continued a normal production during 1919 and approximately 10,000 tons of lignite were mined. This has been the average output for the past several years and despite the demand for fuel, no increase was made during the past season. The mines situated some distance from railroad connections produced only such amounts as could be consumed locally. There will be no increased productions from these properties until railroads are built through the fields, making possible shipment to market. At present there are no indications that the transportation question will be settled by the extension of railroads into the coal areas and we cannot look for a marked increase within the next few years.

The Robbins and Lindt mines in Dewey County are within a few miles of the railroad and made normal productions during the past year. The shortage of labor was directly responsible for the small yield, which did not meet the demand for this fuel. Both of the above mines were purchased by the South Dakota Fuel & Coal Products Co. of Watertown, but the mines were operated, under lease, by individuals. In addition to these properties the company also purchased adjoining coal lands and now owns 800 acres in the Isabel and Firesteel districts.

It is probable that operations will be undertaken on a large scale during this coming year, with steam shovels utilized for stripping and mining. The overburden has a depth of 20 ft. and the coal bed will average 7 ft., at the two main producing mines. The fuel is a good grade of lignite, containing from 6,000 to 9,000 B.t.u. and an average of 20 per cent of moisture. The Robbins mine produced 1,500 tons, most of which was shipped to points along the railroad, while the production from the Lindt mine was less. The remainder of the annual state yield was taken from mines in Harding, Perkins and Corson counties and used locally as fuel for domestic purposes.

Tennessee

BY A. W. EVANS

Chief Mine Inspector, Nashville, Tenn.

THE annual production of coal in Tennessee for the year 1919 will closely approximate 5,000,000 tons. The production of coal was materially reduced by the strike, in the bituminous coal field, covering a period of 45 days.

The production of coal up to Dec. 1 was approximately 4,000,000 tons. The loss in tonnage to the state due to the strike will closely approximate 700,000 tons. On Dec. 15 the mines were running 100 per cent full; on that date, all of the miners returned to work.

The largest producing mine in the state is the operation at Fonde, Ky., owned and operated by the Clearfield Coal and Coke Co. The camp and post office is situated in Kentucky, but the mine is in Tennessee, and comes under the supervision of the mining department of that state. The next largest operation is the mine at Whitwell, Tenn., owned and operated by the Tennessee Coal, Iron and R. R. Co. The respective tonnage from these operations are 20,000 and 18,000 monthly.

During the year, several coal companies, commenced the development of new properties, and as these operations will be producing coal during the early part of 1920, it is safe to predict, that the annual production for the ensuing year will prove the largest in the history of the state.

The Buffalo Coal Co. is developing a lease of 1,200 acres on New River in Anderson County on the Tennessee R. R. This lease carries 500 acres of the Dean seam, averaging 6 ft. 9 in. in thickness, and this is the bed being exploited. The incline 2,800 ft. in length is graded, both lower and upper tipples are in course of erection, 9 four-room dwellings have been completed, and the steel rails for incline and spur tracks, as well as the drum, and rope are on the ground. This mine will have an ultimate output of 1,000 tons, and will be one of the state's large producers.

The Pruden Coal and Coke Co. of Pruden, Tenn., is building a new plant, which will be known as the Valley Creek operation. This is situated in Clairborne County, on the Southern R. R., 2 mi. south of the old plant at Pruden. This operation is on the Mingo seam, and the company expects to mine an average of 1,000 tons daily. This plant will be modern in every respect.

Texas

BY BRUCE GENTRY

State Inspector of Mines, Rockdale, Tex.

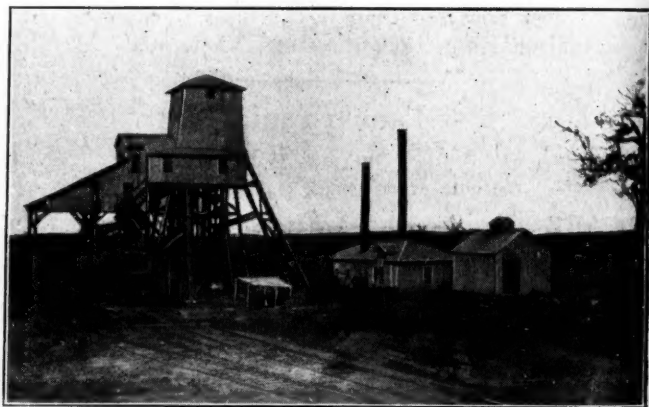
THE production of coal and lignite (brown coal) in Texas for the year 1919 Jan. 1 to Dec. 31) were approximately:

Bituminous, 700,000; sub-bituminous, 31,000; cannel, 62,000; and lignite, 860,000. The total was 1,653,000 short tons.

The total number of mines in operation during the year was 54 divided as follows: Bituminous, 13; sub-bituminous, 2; cannel, 2; and lignite, 37.

The bituminous mines gave employment to about 3,500 men while the lignite mines employed 2,500 men. The year 1919 saw the opening of new mines, and the abandoning of five.

The deposits of bituminous coal are located in the northcentral part of the state, only one seam underlying most of this region. This bed of coal ranges from 18 to 48 in. in thickness, the depth below the surface being from 100 to 600 ft. The mines operated in this district are worked on the longwall plan, with the exception of two which are worked room-and-



TIPPLE, J. HOUSTON-LEON COAL CO., CROCKETT, TEX.

pillar. These mines use electric haulage, overhead trolley and storage batteries. Little machine mining is done, most of the coal being undercut by hand, and small shots used to break it down. Practically the entire output of the bituminous mines is used by the railroads. These mines are all operated by organized miners, being located in District 21.

The sub-bituminous mines are located in the southwestern part of the state on the Rio Grande, and the field is small in extent. There is here only one bed which averages about 48 in. in thickness and carries a number of partings. In this field is operated the only washery in Texas. These mines are worked on the room-and-pillar plan. Mule haulage is employed. This coal is used principally in electric lighting plants and for domestic purposes.

The cannel mines are also located in the southwest-

ern part of the state, lying about 100 miles to the south of the sub-bituminous field, being situated on the Rio Grande also. Here two seams are mined, each bed averaging about 18 in. in thickness. Bed 1 is about 100 ft. below the surface, while bed 2 lies 100 ft. deeper. Gasoline motor haulage is used, and the mines are worked on room-and-pillar plan, electric machines being utilized to undercut the coal. The output of cannel coal is consumed by railroads, irrigation pumping plants, etc.

The lignite mines extend from one corner of the state to the other, beginning in the northeastern part and stretching in a southwesterly direction across the state. In this field there are many many beds, those being worked running from 48 to 150 in. in thickness. All of these mines are worked room-and-pillar plan. Most of the coal is pick-mined. Gasoline, rope and mule haulage are used. These mines are operated open shop. The output of the lignite mines is consumed largely by the street-railways, electric power plants, cotton-oil-mills, gins, for domestic purposes, etc. Especially has the lignite found favor as a domestic fuel this year because of the shortage of the other coals.

Texas was affected by the recent coal strike, the bituminous output being entirely suspended for the duration of the strike. The lignite mines, however, continued their production and materially relieved the situation. Some of the mines were able to increase their output, thus furnishing additional fuel at a time when it was sorely needed. The train service (freight and passenger) suffered some, but not so severely as in some other states, because many of the roads of Texas operate oil-burning engines exclusively. The present outlook is that several roads formerly burning coal will now change their fuel and burn oil in the future. During the period of the strike many of the miners left the mining centers, going to the farms, where they found work picking cotton and doing other farm labor.

The mining industry is a safe one as is proven by the small number of accidents each year. None of the mines are deep and none are gaseous. During the year 1919 there were only one or two fatal accidents in all the mines.

The outlook for the coming year seems to be that the mines will be quite busy, and it is doubtful whether there will be any slack work, the duration of the strike having been so long that it will tax the mines to produce enough coal to make up the tonnage lost.

Utah

BY C. A. ALLEN

Chief Mine Inspector, Salt Lake City, Utah

AFTER the signing of the armistice the production of coal in Utah showed a marked falling off. Throughout the remainder of the winter the production was not much greater than for the similar months of 1917, while in April and May the market was extremely sluggish, causing the production to fall below that of 1917. However, June and July, which are, ordinarily, slack months, commenced to show an improvement. The fairly steady market in the summer and early fall months greatly helped the Utah mines, and the production was further increased in October and November. In November practically all the other coal-producing states were suffering from the general strike, whereas Utah was producing all she could with

the men available. The estimate for December is based on the production for the first half, which showed an increase over the same period of November. The mines were, however, suffering from a shortage of cars, which, taken with the fact that the Christmas holidays occur during this month, will probably make the production for December little larger than that for November.

During the year just closed there was but one mine to start production—the Kinney Coal Co. at Scofield, Utah. Three other companies, however, started surveying for the opening of new properties. They were: The Utah Coal & Coke Co., which has already done some work toward opening a mine near Sunnyside; the

UTAH COAL PRODUCTION IN 1919

Month	Production (Tons)	Month	Production (Tons)
January	387,948	September	407,152
February	318,781	October	470,649
March	322,027	November	467,473
April	247,342	December	472,000*
May	297,228	Miscellaneous small	
June	349,955	mines	16,000*
July	386,211		
August	426,262	Total	4,568,128

*Estimated.

Mutual Fuel Co., which is planning to open a mine near Rains, and another company which, under the management of Arthur Gibson, plans to open a block of coal land just south of Standardville.

The outlook for 1920 is good, because of the fact that there is an increasing demand for Utah coal at Pacific Coast points. The production is also expected to be larger in 1920 because some of the mines that only did preliminary work during the past season are expected to be in the producing class before the end of the new year.

It is also reported that the Milner interests, which own a large block of coking coal land, have secured capital for the establishment of steel works in Salt Lake Valley, the iron ore to be brought from southern Utah and the coal for the coke to be mined on their property in Carbon County.

Everything considered, the coal industry of the state can anticipate an excellent year in 1920.

Virginia

BY A. G. LUCAS AND F. E. MAXEY

Mine Inspectors, Richmond, Va.

THE output of the coal mines of Virginia for the year 1919 will fall far below that of 1918 according to the best information obtainable. While no figures are at this writing available, yet it is believed that the shortage will not be less than 25 per cent and may be considerably more as compared with the output for 1918. This would make the 1919 output about 7,500,000 tons. This reduced production resulted principally from two causes.

During the early part of the year there was a lack of orders which resulted in the operation of the mines for only from one to three days per week. This continued during January, February, March and part of April. From April to the latter part of July and again from the latter part of October to about the end of November the operators report a shortage of cars. During the latter periods the mines were in operation from three to five days a week.

Coal production in Virginia has steadily increased since the inception of the industry in this state. The output for 1880 was 38,463 long tons. The increase

since that date has been fairly uniform, reaching its highest point in 1917 with a total of 10,396,625 tons; in that year Virginia ranked the ninth state in the production of coal.

The four largest coal producing companies operating in this state in the order of their output are the Stonega Coal & Coke Co., the Clinchfield Coal Corporation, the Pocahontas Fuel Co., and the Virginia Iron, Coal & Coke Co. The Stonega Coal & Coke Co. is the largest producer of coal and coke in Virginia and its Roda Mine produces more coal than any other operation in the state.

The recent strike only affected the mines in Lee County. About 1,000 men were out on strike for about six or seven weeks. About one-third of these men have left the state, one-third moved to other camps within the state and the majority of the remainder have returned to work in the Lee County district.

The strike was conducted in an orderly manner with absolutely no disturbance by the miners. Some shooting around the mines was reported several times but on investigation no evidence was found that the miners were in any way implicated in the rumored disturbance. The Baldwin guards were called out on one occasion to quell a riot and on investigation it was found that the alleged disturbance was caused by some boys shooting fire crackers. Only one death resulted as the outcome of the strike. This was that of a Baldwin-Felts guard accidentally shot. His gun fell to the ground and was thus discharged shooting him in the leg severing an artery.

The prospects for the coming year appear at this time to be bright. There is every reason to believe that with more settled conditions and the impetus given industry, following the declaration of peace, that production in this state will go forward with greater rapidity than ever before.

Washington

BY JAMES BAGLEY

State Mine Inspector, Seattle, Wash.

REPORTS for the first eleven months of 1919 indicate that the coal production for the State of Washington for the year 1919 will be about 3,100,000 tons, showing a decrease of over 900,000 tons as compared with 1918. Part of this decrease was due to the strike which closed the Washington mines from Nov. 1 to Dec. 17. The miners were ordered to return to work on the latter date but only part of the mines then resumed operations as the miners in the Roslyn-Cle Elum field, which produces about half the tonnage of the state, refused to return to the mines until their district officials visited the field and urged them to do so. They resumed work on Dec. 22.

Most of the Washington mines resumed work under protest as the operators claim they cannot absorb the 14 per cent increase in wages without increasing the price of coal. They also contend that any increase in the price of coal will place them at a serious disadvantage in competing for business with California fuel oil as well as fuel from Utah and British Columbia where coal can be mined at much less cost, because of the more favorable mining conditions and the fact that the miners are not organized.

Only one new mine of any importance, the Bellingham Mine in Whatcom County, operated by the Bellingham Coal Mines Co., was opened during the past

year. This mine is shipping about 300 tons per day and will considerably increase its output during the year 1920.

Eighteen fatal accidents had occurred up to Dec. 24 as against 32 for the previous year.

A campaign of education will be started early in the present year in an effort to reduce accidents in the coal mines of this state. A merit rating system has been adopted by the State Industrial Insurance Commission whereby the careful operator will be given credit for his efforts in preventing accidents while the operator who does not take the same interest in safety will be penalized. Educational standards have been adopted for coal mines that, if carried out in the right spirit, will get all employed in mines interested in safety for in that way only can accidents be prevented.

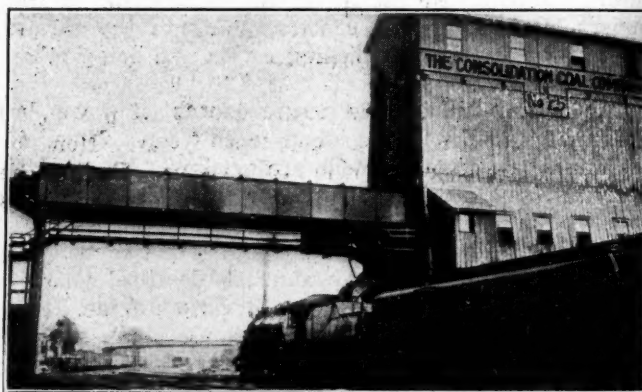
West Virginia

BY W. J. HEATHERMAN

Chief of Department of Mines, Charleston, W. Va.

THE period covered by the year just closed, has been the most unusual one in the history of the coal industry of West Virginia. In the latter half of the calendar year of 1918 the signing of the armistice paralyzed the coal industry, which in turn was reflected in all other lines of industry and commerce, and as the unemployment lengthened over into the year 1919, unmistakable signs of unrest began to appear; nor, did the return to normal production in the month of May, allay the signs of unrest.

Local disagreements at many of the mines, brought on local strikes throughout the organized sections of the state, and caused a considerable curtailment of pro-



CONSOLIDATION COAL CO., NO. 25 MINE

duction, for which there are no figures. Shortage of railroad equipment to the mines, has been the largest retarding factor in the production of coal, and will easily account for the 40 per cent loss of tonnage in the production.

Rescue stations, have been established at Wheeling, Fairmont, Elkins, Welch, Logan, Mount Hope and Charleston, in charge of Robert Lilly, late mine-foreman in charge of U. S. Mine-Rescue Car 8. Mr. Lilly, is training rescue teams at each of the stations, and great interest is being taken by the best young workmen at the respective vicinities where stations have been established. The operating companies are generously assisting in this new feature of the department work in this state.

During the year past, County Mining Institutes, have

been organized at the solicitation of the district inspectors under the direction of the chief of the department, for the purpose of educating foremen, firebosses and assistant foremen, and any mine employee in their respective duties, in order to obtain a better knowledge of the mine laws and the responsibilities and legal duties under the law. It is believed, that through the educational work of these institutes, better enforcement of the law can be had, and that it will lead to a more definite fixing of responsibility upon the mind and person of each mine-employee.

In this period of willful violation of law by irresponsible radicalism, and social and industrial revolutionary ferment, no better subject than respect for, and willing compliance with, the requirements of the law, can engage the public mind at this time. Educational work will bring about the elimination of black powder, and relegate the squib and "short fuse" to oblivion, replacing them by permissible explosives with shot-firers, detonators and electric batteries; and will thereby eliminate a prolific source of serious and minor accidents.

A legislative amendment to the mine law should be passed requiring superintendents to have certificates of competency, take oath to perform their duties according to law, and give bond for the faithful performance of duty.

The coal mines as now developed in the state are capable of producing 125,000,000 tons annually without any estimate for new development now actually begun, and in contemplation, pending completion of organization and assembling of machinery and materials. Statistics for the fiscal year ended June 30, 1919, and comparison with the preceding year follow.

	1918	1919	Increase	Decrease
Production coal (tons).....	90,766,637	84,803,918	...	5,962,719
Production coke (tons).....	2,843,597	1,866,372	...	977,225
Men inside.....	71,253	71,958	705	...
Men outside.....	18,365	16,930	...	1,435
Coke workers.....	2,514	2,142	...	372
Coal used in the production of coal.....	4,935,382	2,921,339	...	2,014,043
Fatal accidents inside.....	352	332	...	20
Fatal accidents outside.....	52	45	...	7
Tonnage, per fatal accident inside,	257,860	255,765	...	2,095

Wyoming, District 1

BY ROBERT T. SNEDDON

State Coal Mine Inspector, District No. 1, Diamondville, Wyo.

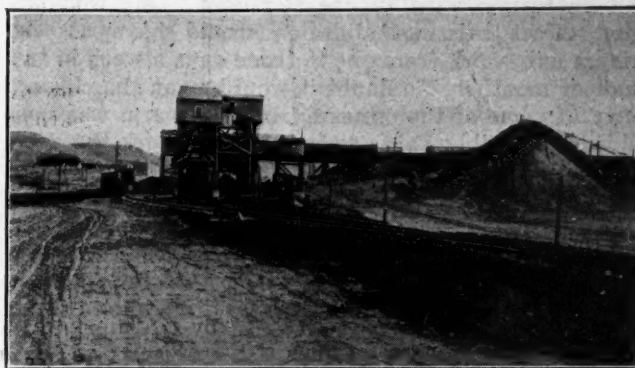
THE coal production in District No. 1, State of Wyoming, for the year ended Sept. 30, 1919, amounted to 5,232,682 tons, a decrease of over 1,000,000 tons as compared with the production for the previous twelve months.

The decrease in production is attributable to labor shortage during the busy season and a poor demand for coal during the spring and summer months. Slow time began to manifest itself in February and continued until the end of July. In some of our largest producing mines during that period the average time worked was four days per week, while a number of the small producers were shut down entirely. A good feeling seems to exist between the operators and the men, as all grievances have been amicably settled without resorting to extreme measures during the period covered by this report.

Twenty-six fatal and 144 non-fatal accidents have been recorded, compared with thirty fatal and 190 non-fatal accidents for the previous year. Fifty-eight per cent of the accidents were due to falls of roof.

Four thousand, six hundred and sixty-three men were employed in and around the mines, making the ratio of fatal accidents per 1,000 men employed 5.57, and the ratio per 1,000 men employed for non-fatal accidents, 30.9.

During the past year electricity was utilized to a large extent, displacing steam for hoisting, pumping



RELIANCE MINE OF THE UNION PACIFIC COAL CO.

and haulage. The old frame buildings are being discarded and fireproof structures composed of cement, brick, etc., are being erected over fans, hoisting engines, power units and the like. The necessity of establishing bath houses at the mines has been taken up by some of the up-to-date coal companies and good, substantial bath houses have been installed, and it is only a question of time when others will follow their example. Good housing accommodations for workmen is receiving close attention by the coal operators. The old shacks are being supplanted by modern dwelling houses; recreation and amusement halls are being built for the health and entertainment of the workmen.

Wyoming, District 2

BY R. V. HOTCHKISS

State Coal Mine Inspector, Sheridan, Wyo.

THE production for District 2 will fall far short of that for 1918, because there was no market for coal during the first nine months, and the strike cut into the production during the last two months of the year. It would be safe to say therefore that the production will be half a million tons short of that of last year, making it about 2,650,000 tons. We will not know the exact amount until the operators turn in their annual reports. The law was changed at the last session of the Legislature, and reports from Jan. 1 to Dec. 31 of each year are now required instead of closing Sept. 30. As the operators do not make any monthly reports, it makes it difficult to give any accurate figures on production or distribution at the present time. The railroads use a large percentage of the coal produced in District 2.

The high cost of living has been a bone of contention with the laboring man, especially the coal miner. He looked for an adjustment to take place, but as yet things are much unsettled from the miner's point of view. Companies that had kept their organization intact for a period of years found themselves badly disorganized after the strike and it is only within the last week that the production has got back to normal. With the present rate of production it makes one wonder why there is ever a coal shortage. The nine

mines in Sheridan County recently produced 13,200 tons, the largest day's run, and the largest run on record. This does not include the wagon mines of which there are quite a few, some of them producing up to 100 tons a day.

At the present time there is strong talk of the Peabody Coal Co. taking over the Sheridan County mines and operating them as one company. One wonders what effect this consolidation would have as the miners only work from one to three days a week in the summer months. No doubt it would mean the closing down of some of the mines during the warm weather, allowing possibly half of the mines to work the year round, and the rest of them work during the winter months. Every one is hoping for the best, and if a consolidation of the companies will bring steadier work to the miners in Sheridan County no one will welcome it more than the men who have remained in the field and heard the whistle blow from one to three days a week, from six to eight months in the year.

Saskatchewan

BY E. PIERCE

* Mine Inspector, Roche Percee, Sask.

THE output of the Saskatchewan mines in 1919 surpassed that of last year, the shipping mines not being able to fill all the orders received during the months of October and November. This great demand arose from the practical exhaustion of all stocks held by local dealers at the commencement of the winter season, such stocks being small because of the Alberta coal strike last summer, and the winter setting in early and almost causing a famine. Production may be roughly estimated as somewhat exceeding 250,000 tons during the year just passed.

There were no labor troubles other than a scarcity of experienced miners to augment the difficulty of the operators in meeting the great demand for coal. Owing to the insistent demand and high prices offered a considerable number of cars were loaded at Estevan Station loading platform, most of the coal being hauled by sleigh and teams three and four miles, from the small mines in the valley south of the above town.

No new operations were opened in 1919, and out of 51 mines in this province only eight are shipping coal direct from the tipples in car lots, six mines are hauling by teams to the loading platforms at the railway stations, the other 47 being located a considerable distance from the railways, and supplying the needs of the farmers in the southwest portion of the province.

The most up-to-date mine is that of the Western Dominion Collieries, Ltd., at Taylorton, under the management of Andrew A. Miller. This is a shaft mine with self-dumping cages, shaker screens, electric haulage motors underground, and electric coal-cutting machines; the method of working is entry and room and the seam is 9 ft. in thickness. The output is approximately 13,000 tons per month.

One fatal and four non-fatal accidents occurred during the year.

The total coal requirements for Saskatchewan in 1918 were 1,510,000 tons. This does not include railways, nor large consumers, such as power plants in towns and cities. Taking into consideration the above demand the future of this lignite field is decidedly promising, chiefly on account of its location in proximity to the large cities

of Moose Jaw and Regina, as well as other large towns.

In order to secure a more equitable distribution, during the entire year, of the lignite coal of Saskatchewan, and at the same time permit of the working of the mines during the summer months, an agreement was made between the Dominion Government and the governments of Saskatchewan and Manitoba; and a board called the Saskatchewan Lignite Utilization Board was appointed to determine the possibility of briquetting carbonized lignite. Indications point toward the establishment of a commercial plant to demonstrate the practicability of such a process. Should the result be satisfactory, it will not only provide a suitable fuel for the farmers, one that can be stored during the summer months (in place of imported coal), but will cause a great development of the coal-mining industry of Saskatchewan, and set at rest all fears of a fuel shortage in this province.

The plant for carbonizing lignite for the manufacture of briquets, is being erected by the board of Bienfait, Saskatchewan, the expected output being 30,000 tons per year. This will be distributed as widely as possible, so that the briquets may be demonstrated throughout a wide area.

The board has made much progress on both processes and plant and expects to be producing briquets commercially before the close of 1920.

British Columbia

BY GEORGE WILKINSON

Chief Inspector of Mines, Victoria, B. C.

IT IS estimated that the gross production of coal was 2,504,423 long tons, or 2,804,953 short tons, of which 147,205 long tons were made into coke, leaving the net production at 2,357,218 long tons. These figures show a decrease as compared with 1918, or 68,388 tons gross and an increase of 65,150 tons net. The quantity of coke made was about 98,598 tons, which is a decrease of about 92,060 tons, as compared with 1918. For purposes of comparison the following table is shown:

Gross tons of 2240 Lb.	1919	1918	1917	1916	1915	1914
Coal	2,504,423	2,572,811	2,398,715	2,485,580	1,972,580	2,166,428
Less made into coke	147,205	280,743	248,740	401,487	361,551	355,461
Coal, net	2,357,218	2,292,068	2,149,975	2,084,093	1,611,129	1,810,967
Coke made	98,598	190,656	159,905	267,725	245,871	234,577

In these figures for 1919 the output for the month of December has had to be estimated, consequently the final figures may vary from the above slightly.

Summarizing the Provincial production of coal, the following table shows the estimated output for 1919:

	Long tons
Vancouver island collieries.....	1,690,724
Nicola and Similkameen collieries.....	152,731
Crowneast district collieries.....	659,408
Telkwa collieries.....	1,560
Total quantity coal mined.....	2,504,423
Less that made into coke.....	147,205
Net quantity of coal produced.....	2,357,218

In addition to the above net production of coal, there was manufactured the coke production shown in the following table:

	Long tons
Vancouver island collieries.....	43,517
Nicola and Similkameen collieries.....	0
Crowneast district collieries.....	55,081
Total.....	98,598

As will be seen by the above figures, the net coal production this year is expected to be some 65,150 tons (2240 lb.) more than it was in 1918. The production of coke in 1919 was about 98,598 long tons, which is 92,060 tons less than that of the preceding year, a decrease of about 48 per cent.

The coal mines of the Province have had a fairly good year; interruptions to production were as follows: A strike at Fernie closed the mines during June, July and August, but work was started again the beginning of September. During the months of May, June and July the mines on Vancouver Island worked on slack time, losing probably 160,000 tons.

The Vancouver Island Collieries made a gross output of about 1,690,724 long tons of coal, or 24,142 tons more than in 1918.

Western Fuel Co. mined this past year about 641,171 tons of coal, a decrease from the previous year's output of 90,751 tons.

ACTIVITIES OF BRITISH COLUMBIA MINES

The Nanaimo Colliery, in the City of Nanaimo, is entered by No. 1 or Esplanade shaft, which is connected by underground workings with a shaft on Protection Island, and also on Newcastle Island. The workings are at a depth of from 600 to 1,200 ft. and are quite extensive, including a large submarine area. On the north side both the Douglas and Newcastle seams are operated; on the south side only the Douglas or Upper bed is worked. This property has been in operation since 1881, and is still the largest producing coal mine in the Province.

The Reserve Colliery is situated about five miles from Nanaimo; the Douglas seam is reached through two shafts 950 ft. in depth. This property became a producer in 1914; development has been retarded owing to faulted and much-disturbed condition of the coal bed.

The Harewood Mine, which has been closed down for a number of years, was reopened during 1917, and at the present time is producing about 1,000 tons daily.

The Wakesiah shafts, which were sunk during 1918 on the Five-acre Lots, are now producing 200 tons daily.

The Canadian Collieries (Dunsmuir) Ltd., operates two collieries—the Comox Colliery, situated at Cumberland, 70 miles north of Nanaimo, and Wellington-Extension Colliery at Extension, 6 mi. southwest of Nanaimo. The mines of the Comox Colliery are situated around Cumberland and are connected by a standard-gage railway with the seaboard at Union Bay, where are situated the loading place, a coal washery and a battery of 200 coke-ovens. The mines operated during the year were Nos. 4 and 7 slopes and No. 5 shaft. No. 6 shaft, however, has not been producing coal during the year. The estimated gross output of coal for this colliery during the year is 549,513 long tons, an increase of 11,151 tons over 1918.

The mines of the Wellington-Extension Colliery are situated around Extension, and are connected by a standard-gage railway with tidewater, and the Extension & Nanaimo Ry. at Ladysmith, where a coal-washery, bunkers, and loading-piers are situated. Three mines were operated during the year. Nos. 1, 2 and 3, entered by a tunnel 5,000 ft. in length. The output for the year was about 224,498, or practically the same as that produced in 1918.

The new slope known as No. 5 mine is being developed

at South Wellington, from which the output for the year was about 86,118 tons, an increase of 57,331 over 1918. Pacific Coast Coal Mines, Ltd., operated the Mor-den mine throughout the year. This mine is situated about 6 mi. south of Nanaimo and produced about 64,147 tons during 1918, this being a decrease of 18,482 from the 1918 production. The Suquash Colliery, situated on the northeastern coast of Vancouver Island and owned by this company, was not in operation during the year. British Columbia Coal Mining Co.'s output for the past year was about 36,739 tons, or an increase of 32,029 tons over 1918 production.

The operation of the Nanoose Collieries, Ltd., is situated at Nanoose Bay, about 10 mi. north of Nanaimo, the workings being in the Old Wellington Seam. The output for this colliery during the past year was 20,803 tons, a decrease of 9,633 tons from that of the previous year.

The new colliery, or No. 1 of the Granby Co. at Cassidy Siding, produced about 67,735 tons of coal during



THREE COAL VEINS OF ANTHRACITE
Beds located in British Columbia near Lake Kathlyn are 30 ft. thick the year. This was an increase of 50,110 tons over the 1918 production.

The Nicola-Similkameen coalfields produced in 1919 about 152,731 tons, this being a decrease from the previous year of 21,542 tons. In the Nicola District four companies produced coal during 1919, viz.: the Middlesboro Collieries, Ltd., the Fleming Coal Co., the Merritt Collieries and the Coalmont Collieries. The Middlesboro Colliery produced about 81,589 tons during the year, this being a decrease of 19,411 tons from the previous year. The mines in operation were Nos. 4, 4 East, 7 and 8.

The Fleming Coal Co. operated the Coal Hill mine during the year. The production for this colliery was about 37,127 tons, an increase over the previous year of 6,127 tons. At Princeton, the Princeton Coal & Land Co. produced about 22,966 tons, showing a decrease of 15,712 tons from the previous year. The Coalmont Collieries produced 10,012 tons, and the Merritt Collieries 1,037 tons.

There were only two companies producing in the East Kootenay Coalfield during 1918—the Crow's Nest Pass Coal Co., and the Corbin Coal & Coke Co., with its colliery at Corbin.

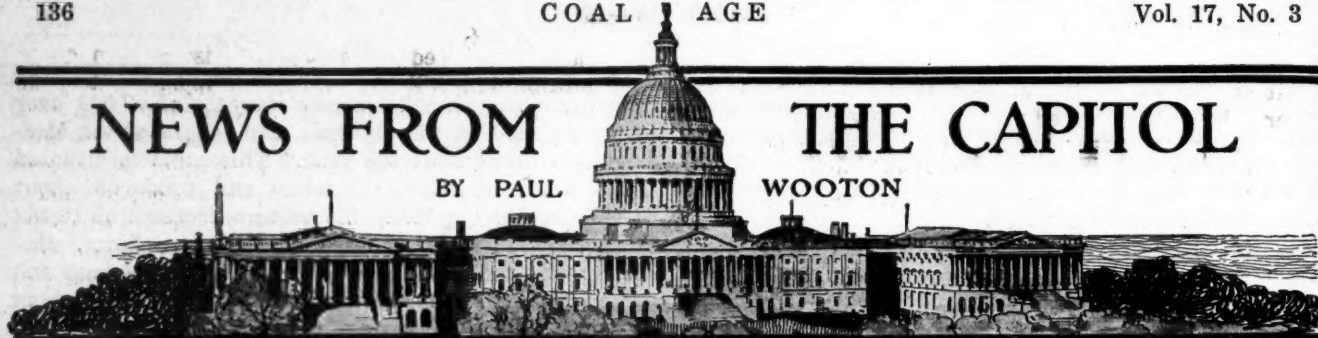
Late in the fall of 1919 production on a small scale was started by the Telkwa Collieries. The colliery is situated 4½ miles from Telkwa, a town on the Grand Trunk Pacific Ry. About 1,560 tons was mined and shipped to Prince Rupert, and a continued production is expected. This was an increase of 1,060 tons over the production of 1918.

NEWS FROM

THE CAPITOL

BY PAUL

WOOTON



Operators Demand Intent of Coal Commission

"Before we enter into the arbitration we should know definitely what it is we are submitting. I believe, in accordance with the rule, that in submitting any questions to arbitration both parties should know definitely what it is they are submitting." The foregoing sums up the position of the mine operators as expressed by Thomas T. Brewster, chairman of the Scale Committee of the bituminous operators of the Central Competitive Field at the initial hearing before the President's Coal Commission.

Henry M. Robinson, the chairman of the commission, put practically identical questions to Mr. Lewis and to Mr. Brewster. His question was as follows: "I would like to ask for the commission if you can speak for the United Mine Workers in this: Are they here to assist in this investigation and are they willing to submit to the award which the commission finally will make?" To this inquiry Mr. Lewis replied: "I am advised that the United Mine Workers are here to assist the Coal Commission in every proper and practical way in order to arrive at their conclusions and to co-operate in every manner. We submit our interests to the commission without reservations and shall abide by the judgment of the commission."

When the same question was put to Mr. Brewster, he stated that before answering he was instructed to submit a statement in writing. The statement set forth that the operators had been unable to determine the exact scope and character of the contemplated arbitration, in respect to some matters of vital importance to the public. The statement brought out further that the operators are anxious to settle the present controversy, to prevent the recurrence of strikes and to prevent the suspension of the supply of necessary coal to meet the needs of the country.

"We hope," said the operators' statement, "to be able to advise the commission promptly of our ability to co-operate with it in arriving at such a result. In order, however, that we may be in a position to comply intelligently with the request of the commission for a statement of the operators' position, we respectfully ask that we be advised as to the following matters." Then followed the list of questions which caused an extended colloquy between Mr. Brewster and Chairman Robinson. The questions were worded as follows:

First: As to the intention of the commission to investigate and act upon matters in the central competitive fields only.

Second: Will the award of the commission be final and constitute a contract, binding upon both parties?

Third: Will the commission in its award provide a method by which the contract entered into may be enforced?

Fourth: Will the commission investigate and act upon matters brought before it by either party, including the check-off system now in effect?

Fifth: Will the commission fix the basic principles upon which evidence is to be submitted, particularly with regard to wages?

Sixth: Does the commission understand that it has the authority, should the facts warrant such findings, to adjust wages, either by awards or between parties?

Seventh: Does the commission consider practicable to make a retroactive award, either as to wages or selling price of coal?

Eighth: Will the commission immediately determine the cost of coal during the year 1919, and the present cost based upon the 14 per cent advance granted the miners, to determine fair selling prices, to be effective at once, having in mind the fair and reasonable profit provided by law?

Ninth: Will the commission's awards as to the selling price of their coal be made to expire simultaneously with the expiration of the Lever Law?

Tenth: Will the commission provide in its award for the introduction of modern devices, which may serve to reduce the cost of coal, and consequently the cost to the public?

Immediately upon hearing the questions Chairman Robinson asked if the answering of the questions is a condition as to whether or not they will submit to the final award of the commission. While Mr. Brewster did not make direct answer he practically answered in the affirmative when he said: "I think that we would like to have as full answers as the commission can give consistently without embarrassment."

The secretarial organization of the commission is to be as follows: Herbert M. Shenton, Executive Secretary; Samuel A. Taylor, Technical Advisor; Mr. King, Counsel; Charles O'Neill, Percy Tetlow, and E. A. Goldenweiser, Secretaries; K. C. Adams, Director of Information, and Mrs. Mary Burke East, Official Stenographer.

Elaborate Statistics Being Prepared By C. E. Leshner

The most elaborate statistics ever collected by any industry with regard to the earnings of labor are being compiled by the National Coal Association. The earnings of 100,000 miners for the first ten months, in all the bituminous coal fields, are being tabulated in a manner so as to disclose many new facts with regard to amounts being paid by coal operators on wage account.

C. E. Leshner, who recently took over the statistical activities of the National Coal Association, has perfected his organization and is preparing to gather such statistics as are not being collected by the government. While the general statistical program being planned by the National Coal Association will have to be deferred somewhat due to the immediate necessity of getting up special information, it is the intention to work up figures which will give clearer insight into the general working of the coal industry than ever before has been possible. In addition to compiling data showing what labor earns and how, figures also are being gathered at the present time on the subject of actual investment in the coal industry and the cost of production this year, which has been a lean one, as compared with the fat year of 1918.

Mr. Leshner's chief assistant in the statistical department of the National Coal Association is Adreon Futterer, who was connected with the statistical division of the Fuel Administration during the two years of its existence.

War Department Experiments with Colloidal Fuel

The War Department makes the following announcement in connection with its experiments with colloidal fuel:

The General Supplies Branch is conducting tests on colloidal fuel, which is a mixture of finely ground coal suspended in fuel oil. In the liquid form it can be used in any oil-burning furnace. This fuel is heavier than water and can thus be sealed against combustion and evaporation. As it will not mix with water, it can be stored in this manner for an indefinite period without deterioration. There is no danger of spontaneous combustion on exposure to air and sunlight. This fuel may be reduced to brick form for use in field kitchens and tent stoves.

Hampton Roads Coal Rates Advance

An advance of 75c. per ton in the coal rates from Hampton Roads and Baltimore to Boston and other New England ports became effective Jan. 10 in accordance with a ruling by the Shipping Board. The increase, Shipping Board officials declare, simply takes care of the increased cost of operation and will not permit any profit for the vessels in this trade. For some time it is explained that vessels in the New England coal trade have been operated at a loss.

Commission's Work Will Be of Little Value

With the opening of the hearing before the President's Coal Commission operators very generally seem to be of the opinion that the chances greatly favor conclusions which will be adverse to the operators and to the public. It is the belief of many that the Commission's ruling will settle nothing and be of no permanent value.

The miners are going before the President's Commission with their representatives entirely in agreement and with full knowledge to the smallest detail as to what they want. On the other hand the operators' representatives are widely apart as to the stand that should be taken and it will be very difficult for their representatives to give even an approximation of what they want the decision to be. The operators' position is being compared to that of the Allies before they unified their command. Labor, on the contrary, has all the advantages of a unified command.

An opinion not held alone by coal operators is that the President's Commission is not of sufficient weight to impress the country. Nearly everyone who has given the matter any thought seems to be of the opinion that the only hope for anything permanent from the Commission's work would be its enlargement. There is no particular demand for the additional members to be coal men but it is thought that they should be men nationally recognized. As a matter of fact the President's Commission is attacking a problem of the same proportions as that which presented itself to the Industrial Conference. No three men it is held could begin to get anywhere with such a problem in the time limit specified.

It also is pointed out that there is no man on the commission who will be able to even approximate Judge Gary's great classic which so impressed the nation in summing up the conclusions of the Roosevelt Coal Commission. It is not believed that the report of the present commission will get a national hearing and that the results of its findings are bound to be a compromise rather than arbitration based on findings of fact.

It is very evidently the policy of the miners to split the operators still further and operators themselves acknowledge that they have no chance of impressing the commission unless they get together.

On Jan. 13, the operators agreed to accept whatever construction might be put on the words empowering the commission to make an award which would "serve as a basis upon which a new wage agreement can be made" and to waive the demand that answer be given to the ten questions submitted.

Operators Ordered to Submit Monthly Reports

Under the powers conferred upon it by law and in consideration of a special appropriation made by Congress to investigate the cost of living, and to inquire into costs in basic industries the Federal Trade Commission is advising coal operators that they are required to report monthly costs of production, and other information according to a prescribed form.

These reports must be submitted for each month of 1920 and must be mailed not later than the twentieth day of the month following the month for which the report is made. In addition a balance sheet as of the close of business Dec. 31, 1919, or as of the close of the coal companies last fiscal year, must be submitted. A separate cost report is required when mines operated by the same company are located in separate districts. A separate cost report may be filed for each mine as the operator chooses.

Every effort has been made by the Federal Trade Commission to simplify the balance sheet and cost report. The cost report contains 135 entries as compared with 410 entries on the cost report prepared by the National Coal Association. Every effort has been made to make this cost report the last word in such accounting, and it is believed that some compensation will be had for the trouble of making it out in that the operator will be better off by keeping close track of each report in detail of his costs.

The balance sheet, only one of which is to be submitted during the year, contains fifty entries of which eight are totals. The instructions which are being sent out with the cost report blanks contain over 3,500 words and are intended to be so clear that no difficulties will be experienced in filling them out.

Alaskan Coal Lands Now Available

The Senate on Jan. 5 passed a bill permitting agricultural entries on coal lands in Alaska. All patents granted, however, must contain a reservation to the United States of all coal, oil or gas in the land so patented, together with the right to prospect for, mine, and remove those articles.

It also provides that any person qualified to acquire coal, oil or gas deposits, or the right to mine and remove the coal, or to drill for and remove the oil or gas, shall have the right at all times to enter upon the lands.

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A Year of Experience

WHEN a year passes without much addition to national wealth and prosperity we can write into the balance sheet, when the auditors are not looking, the words "To Experience." But who knows whether the experience is really worth all that is paid for it? If it were all made use of to its utmost farthing doubtless it would be worth many times the value we would have to charge against it when it is all we have to square a bad balance.

Unfortunately experience does not seem to be bought in large quantity no matter how high the price paid; for the nations that have lived longer than we have, like India and China, Great Britain and France, not to mention others in between, and that have had the most extensive experience, do not seem to have gained a large degree of wisdom by the passage of years or even of centuries.

India has tied itself up in the red tape of caste, which is doubtless a scheme that was put into operation largely for the laudable purpose of providing enough trained workers in every class of operation. China has hampered itself by tongs, by a multiplicity of officials and by ancient practices for which there no longer exists any adequate excuse. Great Britain and France are suffering from the restrictions put upon labor by unions and on the employing class by social practices. They all have their multicolored tape in which they wrap and swathe themselves, and every time they fall they tie a few more knots, instead of undoing what has been tied, while the new snarl only insures that they will fall again or at least find their progress thereafter appreciably hampered.

We are doing the same thing. Every time the nation falters as it did during the war we put some new pieces of harness on it so that, if our judgment is correct, it will never falter again, but the new piece of equipment acts as a check rein and lessens the nation's ability to haul its load. Most of these checks seem admirable enough in their way and well calculated to relieve the difficulties existing.

With a sigh of relief we gave up the inefficiencies and antagonisms of private railroad management. Many of us thought that the railroads would do better under Government management than they have done. They had everything their own way. There was no competition. They could overload the coaches and herd people at their pleasure; they could lay off trains; they could reduce accommodation by dropping dining, club and observation cars and other accommodations. They could have regular shipping days for less-than-car-load-lot shippers. They could pool cars and put the traffic over direct and easy-grade lines.

But nationalization has proved all to no purpose. Government management has only completed what Government regulation commenced. Expectation was that when the coal strike was ended the coal cars would be

mobilized in squadrons ready for a big coal output. The car shortage was, however, larger than ever. Apparently no good judgment was shown in the handling of transportation facilities, or else, to save expenditure for the moment, the necessary number of freight trains was not run.

There is little or no complaint, however, not such a tempest as there would have been if the railroads had still been individually owned and hampered by Federal regulation and had failed in an equal degree. In fact the condition of being enamored of our chains seems as common here as in Europe and the Far East. We hanker over much for Federal regulation of industry though it has never helped any nation. It nearly ruined the Byzantine Empire. It, with a love of luxury, was the cause of the fall of Rome. It has crippled the railroad industry already. It may yet have the same effect on coal production if we will not learn from experience.

Surely after several years of repression of transportation, coal and sugar prices we are learning that such repression does not pay. The coal prices during the war were for most of the time not oppressively low, so production did not suffer for any length of time. But transportation and sugar production have been hopelessly inadequate. One wonders what kind of help we could have been to our allies, what kind of fight we could have waged in France, if we had controlled our iron and steel interests as excessively as we have our railroads.

Now we are to have a "standard return." The pay for service is to be a percentage, not based on the value of the service rendered, or on the economy with which the service is performed, but solely on the capital invested and the cost of rendering the service. The cost-plus system under a new name is to be perpetuated. If the investment was illjudged, if the service is uneconomically rendered, it is to make no difference, the reward is to be the same in any case.

The standard return looks much like the standard wage that the unions have somewhat generally forced on industry. "All the traffic will bear" was never without its merits. Sometimes the traffic would bear only a small burden that did not pay the interest on the investment; sometimes it would carry readily a large service charge; but the charge in any event was made proportionate to the service whereas it has relation now only to the cost of the work performed. There is no incentive to use judgment or economy in rendering the service. The company that cuts the cost will be rewarded by having the rate cut also.

In 1920 we can do no better work than to give the railroads a fair measure of freedom and the right to charge profitable rates. Why should the users of the railroads be allowed to profiteer at pleasure, while the railroad that hauls the material thus sold at profiteering prices is kept strictly to a cost-plus level?

If the material carried is a luxury, then the carriage of it is an element of the luxury trade and by no means a necessity. If a sealskin coat or a billiard table is not a public utility surely the transportation of it is not a public service to be performed at or below cost. Every luxury industry is trying to claim that everything that is necessary to the luxury trades is a necessity. Nothing can be more fallacious. If the essential industries are to be serfs to the basal needs of the people, it does not follow that the luxury trades have a right also to hold them in villenage.

Meeting Industrial Limitations

SUCCESSFUL business men are well aware that it pays to find what any given market wants and then either to comply with its needs, change those needs or withdraw from the market. It is necessary therefore to know just what any particular market is trying to secure, whether it can be satisfactorily diverted to accepting something else, better or worse, and whether the necessary demands are likely to be so drastic as to make compliance too burdensome or actually impossible.

Operators need therefore to know where and how their coal is used and why. They are apt to say that their problem is production, not consumption, but unless they understand the needs of the consumer they are apt to go far wrong. As a matter of fact the coal industry has not held conferences enough with manufacturers of fuel-using machinery and consumers of coal. If it had, doubtless there would be more slack burned and more coal replaced by electric energy generated at or near the mines.

The man who knows only his product and not its use is not a successful seller of his output. He must understand just what the purchaser really needs, and then between them they must decide how operation and consumption can best be dovetailed together.

Many a small purchaser of coal does not have the knowledge of consumption or the time to acquire a knowledge. A suggestion from a man who has made a study of coal may enable him to rectify his methods so as to get results with the coal supplied him or to take a grade that is better suited to the mutual needs of the seller and buyer. The operator or his selling aides, having a large interest at stake, may well make such studies and thus increase their sales.

Our Industrial Unrest

THERE are two kinds of industrial uneasiness, one which results from distress and hunger and another which is the outcome of excessive prosperity and agitation. It is this latter form of industrial unrest with which we are confronted today. The cry that is raised is not one of despair but of desire. So much has been sought and obtained that there exists in the minds of those who do not save, a desire for still better conditions, to be derived not from their own efforts but from union activity or a reconstruction of society more or less drastic.

That part of capital that is fixed in dollars has lost out in the increase in prices and it is only natural to suppose that labor and the stockholders have profited. The condition will not continue. It is quite likely that the bondholder will demand and receive more consideration hereafter and his demands may be a cause of higher living costs. Just now he is getting a low percentage of depreciated dollars for the full-value advances he made before the war. Soon he will come into the market with depreciated coin and demand a high percentage on his money, for every evidence is in favor of the belief that the interest rate on bonds is rapidly rising.

The advantage to labor that now exists will be wiped out when that time comes. But every evidence seems to show that prosperity is as dangerous as adversity and that safety lies rather between penury and riches; so perhaps the outcome will not be so unfortunate as might be feared.

New Capitalists

FULLY determined to lower, if possible, the cost of living, the Brotherhood of Maintenance of Way Employees and Railway Shop Laborers has purchased a knitting and underwear plant, located at Ypsilanti, Mich., a glove factory, making canvas gloves, at Williamstown, Mich., and a tubing factory, operating at Watertown, N. Y.

This is an excellent departure. Nothing is more promising than this commingling of labor unionism with capitalism. Several questions spring to mind. What will happen if the knitting and underwear makers, the canvas-glove workers and the "tubers"—pardon the word—demand higher wages from the brotherhood? Will the members of the employing union be satisfied when their employees conspire against them and even strike to get more than the present scale of wages? And if the increase is granted will the loss be met by economies in operation or by an increase in price after the abhorred capitalistic manner?

The brotherhood has now put itself in the other fellow's place. Will it see things as the employer sees them, and, so seeing, will its demands be tempered by good judgment? Let us hope its members will not demand as employees more than they are willing to grant in their corporate capacity as an employer of their fellow workmen.

Perhaps fairness in the demands of the brotherhood will be the outcome of the experiment. And yet, there is no certainty that the result will be what we expect. Even capitalists fail to learn to do to others as they would be done by. For instance, many manufacturers of America have been leaders in the persecution of the railroads. Transportation companies would not be having so hard a time today if capital, including that of the coal industry, had been ready to see the problem of other as it views its own and arrive at its judgments accordingly.

Then there are the electric-power companies, for example, seeking to throttle the coal business by questioning the right of bituminous-coal operators to meet the increase in wages by a raise in price of 25c. a ton. Thus the public utilities fight among themselves and seek to be spared the natural rise in price that follows an advance in wages.

It is not fair to assert that labor is alone in being unfair, suspicious and self-seeking, for capital has like faults. No one can therefore be surprised if the Brotherhood mentioned should take an inconsistent attitude, holding down its employees while demanding freedom of action for itself.

The new capitalism may, and probably will, be like the old, not overconscientious of the rights of others or overconscious of its own shortcomings, but yet quite ready to assert and compel what it regards as its own rights. The brotherhood firmly believes that it is being wronged by the present prices; it will try the effect of the ownership of all, or at least some, of the mills that are now supplying its members. If it finds that it has guessed wrong, then every card holder of the union will find his belief in the arguments he has advanced shaken to the foundation and thereafter the brotherhood may be more tolerant of capitalism and less confident of the union. It has been noted in the cotton-spinning counties of Great Britain where co-operative stores are many that since their establishment there has been less disposition to indulge in strikes.

What Happened in 1919

January

- Jan. 1—The U. S. Fuel Administration removes all limitations on the duration of contracts for coal and coke made under order of Dec. 25, 1917, with amendment of July 26, 1918—U. S. War Department commences to handle its own coal requirements without reference to Fuel Administration.
- Jan. 2—The U. S. Fuel Administration announces that it has induced the carbon-black manufacturers of Grantsville, W. Va., to cease using the natural gas of West Virginia for that purpose but to operate in Wyoming and Louisiana where gas cannot be otherwise utilized. This will save 15,000,000 cu ft. of gas and 5,000 gal. of gasoline per day—John E. Williams, Federal fuel administrator for the State of Illinois, dies at his home in Sreator, Ill.
- Jan. 4—General March states that 6,000 anthracite coal miners have been ordered released by the army [XV, 151]—Frank E. Harkness is made Solicitor of United States Fuel Administration.
- Jan. 5—George H. Cushing, since 1907 editor of the "Black Diamond," becomes managing director of the American Wholesale Coal Association—Practically all restrictions upon the sale and shipment of bituminous coal for bunkering purposes at points north of Cape Hatteras removed by order of U. S. Fuel Administration.
- Jan. 7—Director of Railroads makes report to President in which he declares that the zoning law greatly helped the railroads in meeting the demands of the nation for transportation [XV, 150]—House of Representatives passes lignite bill, providing funds to determine the commercial practicability of using lignite in producing fuel oil, gasoline substitutes, ammonia, tar, solid fuels and gas for power and other purposes [XV, 191].
- Jan. 8—George R. Sheldon, treasurer Republican National Committee and director of the Union Colliery Co., is seriously injured at Dowell, Ill., by being crushed between a trip and the coal rib. Dies Jan. 14.
- Jan. 9—Strike of 16,000 marine workers ties up more than 1,000 boats in New York Harbor, causing railroad embargo.
- Jan. 10—All fuel conservation provisions of Fuel Administration withdrawn, except those relating to waste of natural gas by free consumers or by inefficient appliances or through carelessness [XV, 165].—Restrictions on domestic and foreign shipments of egg and pea size of anthracite removed, though chestnut and stove continue to be restricted [XV, 165].
- Jan. 14—The Cleveland & Western Coal Co. is fined \$1,000, to be paid to the Red Cross, for disposing of coal shipped to the McKinney Steel Co. for byproduct coke oven use. When the steel company said it had no need for the coal, the coal company sold to local consumers in violation of the zoning order—Explosion of gas at No. 9 mine of Pennsylvania Coal Co. seriously burns three men [XV, 209].
- Jan. 15—Southport Miners' Federation demands that British Government demobilize all miners in army and requires that corporations give them an increase in wage of 30 per cent [XV, 210].
- Jan. 17—Fuel Administration announces that on Feb. 1 all district representatives would cease to function except for the purpose of pre-

[The bracketed figures in the text refer to pages in the present volume and should the reader desire further information he can obtain it by reference to the pages indicated.]

paring records of the work done to Jan. 31 [XV, 191]—Orders of May 16 and July 16, 1918, are suspended by Fuel Administration. These orders prohibited selling, shipping, delivering or distributing smokeless coal received at Lake Michigan or Lake Superior docks except for making illuminating gas, byproduct coke or coal briquets or other purposes designated by Fuel Administration—Coke and all coal, except Pennsylvania anthracite, is relieved of price restrictions and zoning rules. Filling of contracts with Fuel Administration is no longer required [XV, 191].

Jan. 20—Mine fire prevents six men from escaping from Mt. Braddock mine of the W. J. Rainey Co., Mt. Braddock, Fayette County, Pennsylvania. Two men lose lives in rescue work. The six men are ultimately rescued on Jan. 24 [XV, 252, 272].

Jan. 21—Harrold B. Harris appointed Custodian of Records, Fuel Administration [XV, 237]—Cage in Hammond colliery shaft near Shenandoah frees itself of the guides and tears timbers loose so that they fall to the shaft bottom [XV, 252]—No. 5 breaker, of Hudson Coal Co., destroyed by fire [XV, 252].

Jan. 22—Fuel Administration decrees that all orders for the requisition of coal and coke are cancelled and annulled from Jan. 31 onward [XV, 236]—Fuel Administration announces that the Bureau of Labor, which works under the Fuel Administration, will continue its existence till the close of the war [XV, 238]—Employees of Yorkshire, England, mines, numbering some 150,000 men, go on strike for an extra 20-min. lunch time [XV, 239].

Jan. 23—Convention of miners in Winding Gulf field meets at Beckley, W. Va., to discuss a new wage scale which, as decided on by the convention shall give 12c. per ton more to miners and \$1.50 to \$1.75 per day to day workers [XV, 239].

Jan. 24—George E. Howes is appointed historian of Fuel Administration.

Jan. 25—Shipping rates from the United States to the United Kingdom, Havre, Bordeaux, Antwerp, Rotterdam, Marseilles, Cetta, Genoa, Naples, Colombo, Calcutta, Rangoon and Madras reduced by British Ministry of Shipping roughly two-thirds—The ratification of the Prohibition Amendment to the United States Constitution is announced by the Secretary of State.

Jan. 29—War Trade Board announces that the government of Great Britain will on March 1 prohibit the importation of specified classes of manufactured goods from the United States—Mine workers open co-operative store in Shenandoah [XV, 284]—Three miners are killed by the explosion of a pocket of gas at Good-year Mine, Smoky Run, in Clearfield County, Pennsylvania [XV, 295].

Jan. 31—Treasury Department and Department of Interior reassume control of the supply of their coal requirements without reference to Fuel Administration—Orders of requisition for coal and coke are annulled—Maximum prices for anthracite suspended, also all other coal and coke regulations but three [XV, 282].

February

Feb. 1—Mine Workers' representatives meet presidents and secretaries of New River Association and Winding Gulf Operators' Association at Charleston, W. Va., who refuse to discuss a new scale, regarding demand as in violation of contract [XV, 370]—Maximum prices on anthracite and all the coal and coke

regulations, except three, are suspended [XV, 282]—Allison O. Smith, special umpire of Fuel Administration, makes several decisions for New River and Winding Gulf fields [XV, 411].

Feb. 3—Florence and Sydney mines of Nova Scotia Steel & Coal Co. closed down owing to alleged interference of Dominion Iron and Steel Co. with its workings [XV, 339, 456].

Feb. 7—White mines of H. C. Frick Coke Co. are abandoned [XV, 382]—River tippie and trestle of Hec'a Coal & Coke Co., Isabella, Fayette County, Pa., destroyed by fire [XV, 382].

Feb. 10—Store of Federal Coal Co. at Cary, Ky., burned down [XV, 382].

Feb. 11—Alicia mine of W. H. Brown, with 400 coke ovens, all located just above Brownsville, closed down indefinitely [XV, 382]—Coal price regulation in Canada ends [XV, 422].

Feb. 14—Southern Appalachian Coal Operators' Association meets at Louisville, Ky. [XV, 397, 398]—Mine workers of West Virginia parade at Charleston, in protest against "Red flag bill" [XV, 457].

Feb. 17—American Institute of Mining Engineers meets at New York City, adjourning Feb. 20 and changing its name to American Institute of Mining and Metallurgical Engineers [XV, 237, 448, 449].

Feb. 20—Mr. Deitrich, representative from Allegheny County, Pennsylvania, introduces bill providing that where injury arises from failure of employer to obey safety requirements no consideration shall be allowed to affect liability of employer [XV, 498].

Feb. 21—Frank Farrington advocates 6-hour day, 5-day week, as cure for shortage of demand for coal [XV, 499]—Fire breaks out in the South Wilkes-Barre No. 5 colliery of Lehigh and Wilkes-Barre Coal Co., and is walled in on Feb. 23 [XV, 469].

Feb. 23—Sir Guy Spencer Calthrop, controller of British Coal mines, dies of influenza [XV, 471].

Feb. 24—The Amalgamated Mine Workers of Nova Scotia sign contract providing for 8-hour day with no suspension for meal [XV, 499].

Feb. 25—V. Everit Macy announces that the National War Labor Board awards the marine workers of New York an 8-hour day, 6-day week and a week's holiday a year, the short day to be paid for at the same rate as the long day. No retroactive provisions or increase in wage incorporated in decision.

Feb. 27—Meeting of New York State Coal Merchants' Association—Wood tippie at Kellar-Klondyke mine near Clinton, Ill., is blown down by explosion [XV, 510].

Feb. 28—William C. Redfield announces formation of Industrial Board of Department of Commerce to stabilize prices at a lower and "equitable" level.

March

March 3—Senator Vardaman declares that high prices of anthracite during the war were the outcome of monopoly, and that royalties in the anthracite region are too high [XV, 451, 496, 497]—Governors of states and mayors of cities meet in conference at the White House, Washington, D. C., with members of the Cabinet and others. They discuss means of reviving business.

March 4—About 16,000 harbor workers in New York Harbor go on strike against Macy award of 12-hours pay for 8 hours of labor and other concessions. They demand an increase of 30 per cent in the wage

rate also—A. L. Dickenson, financial advisor to the Coal Controller of Great Britain, announces that for the first 3 months of 1918 the profit on mining in that country averaged 86c. per ton on coal having an average cost of \$6.05, which is 14.2 per cent profit per ton. This is over three times average profit in five years ending 1913, when the profit was 24.3c. per ton and the price at the pithead \$2.13. Some companies in 1918 were making \$1.46 per ton—S. D. Warriner makes reply to the March 3 statements of Senator Vardaman [XV, 494].

March 5—Governors and Mayors' conference adjourns sine die after recommending Government activity in railroad construction, the ascertainment by Government of fair prices for staples, opposing price fixing, urging further reductions in freight rates for building materials, opposing reductions in wages till prices fall, recommending inquiries into wastes of natural resources, and recommending that the controllers of natural resources who withhold them for speculative profit or visionary future development be compelled to release them.

March 11—Charles P. Neill gives decision in favor of the crane men, engineers and firemen engaged in steam-shovel work at the Jeddo stripping of G. B. Markle Co. [XV, 541].

March 13—Governor W. C. Sproul of Pennsylvania announces that he has asked Attorney-General W. I. Shafer what powers are vested in the State Government to inquire into the rise in the cost of anthracite [XV, 553].

March 18—Policy Committee of United Mine Workers of America advocates 6-hour day, 5-day week, substantial increase on tonnage, daywork, yardage and deadwork prices with Government ownership [XV, 541, 583].

March 19—Fuel Administration urges the buying and stocking of coal to avert coal famine next winter [XV, 579].—Dr. H. A. Garfield desires the National Coal Association to submit in a referendum to all its members a plan of governmental co-operation [XV, 580].—Thirteen United Mine Workers' leaders are indicted for being parties to a shooting at the mines of the E. E. White Coal Co. in November, 1917, the Raleigh, W. Va., grand jury returning a true bill [XV, 630].

March 20—Sankey Commission makes interim report on the wage question in Great Britain advocating more wages, shorter time, regulated prices and Government to stand some of the losses in production [XV, 585].

March 25—Conferences between Industrial Board of Department of Commerce and the National Coal Association for the stabilization of price open at Washington, D. C.—Bill introduced into Pennsylvania House of Representatives providing for a 1 per cent tax on all coal produced in the state [XV, 642].

March 26—Conference between National Coal Association and Industrial Board to provide stabilized prices for coal [XV, 625].

March 27—Conference for stabilization of coal prices ends, the National Coal Association declaring that the U. S. Railroad Administration is not willing to agree to buy coal at the price to be named but desires to get coal below cost at the expense of the smaller consumer.

March 31—Explosion at the Aguilar mine of the Empire Coal Co., in Las Animas, Col. Twelve men are entombed [XV, 686].

April

April 1—Frank J. Hayes, president of the United Mine Workers of America, visits the White House and announces that his purpose is to call on President Wilson in Paris and urge his co-operation in the securing of increased sales of American coal in Europe.

April 2—Director General Hines of the

Railroad Administration refuses to pay "stabilized" prices for rail—Southern pine lumber manufacturers refuse to "stabilize" their prices.

April 4—Governor Sproul of Pennsylvania declares increase in anthracite prices is justified, attacking, however, railroad rate inequalities and retail delivery charges. He also urges public fuel markets.

April 8—The air shaft at the Harry E. colliery of the Forty Fort Coal Co. is destroyed by fire, endangering the lives of 50 men underground—The washery of the Red Ash Coal Co. is burned. Its value was about \$100,000 [XV, 774].

April 9—President John Brophy, of Central Pennsylvania District 2 of the United Mine Workers of America, protests against the terms of the anti-secession bill [XV, 836].

April 11—J. L. Lewis, acting president of the United Mine Workers, declares that the miners' organization will take drastic action unless Director-General Hines changes his policy in regard to making coal contracts [XV, 773].

April 12—The National Retail Coal Merchants' Association meets at the Fort Pitt Hotel in Pittsburgh, Pa., and resolves to seek representation in Government schemes of distribution during reconstruction period and to encourage early buying of coal [XV, 773].

April 13—The workers of the Clinton, Ind., coal field show their approval of the attitude of the executive board of District 11 which protested against a cut in the price of coal to W. D. Hines [XV, 762].—The Victory Loan drive begins at 12 o'clock midnight.

April 15—Director-General Walker D. Hines instructs the individual railroads that they must give all information as to tonnage in coal contracts to the mine workers' officials in Pittsburgh district.

April 16—The Miners' Federation of Great Britain and Ireland meets in conference and approves by a large majority the report of the Sankey Commission [XV, 762].—All of the mines of the Central Coal & Coke Co., at Pittsburg, Kan., are idle, the 1,200 miners not reporting for work following the strike order of the district president [XV, 762].

April 17—Back wages under the Sankey award, approximately \$25,000,000, are paid out by operators in Great Britain, by order of the Coal Controller, to virtually all of 900,000 workers in the mines of the United Kingdom. The back wages represents an advance of about 25c per shift worked for employees under 16 and 50c per shift for employees over 16, applied from Jan. 9 to April 17.

April 18—The strike of the coal workers in Kansas, Arkansas and Oklahoma fields is extended by Alexander Howat, president of District 14, into Missouri. About 6,000 men are now involved [XV, 823].

April 19—The New York Harbor strike, in its eighth week, is settled under an agreement reached at a meeting presided over by Mayor Hylan, by which the men return to work on a permanent 10- and 12-hr. day basis leaving the increase in wages to be settled by a committee of four representatives of the boat owners and four representatives of the strikers.

April 20—Dr. H. A. Garfield threatens to revoke provision of agreement of November, 1917, unless Howat orders striking miners of the Central Coal & Coke Co. to return to work [XV, 762].

April 22—Representatives of anthracite and bituminous coal producers of Pennsylvania enter protest against any increase in workmen's compensation at the second conference on the suggested amendments held at the state capitol. Representatives of the miners support the amendment [XV, 835].—The resignation of the members of the Industrial Board, George N. Peek, chairman, is accepted. This action followed the failure of the conference arranged

by the board between the representatives of the steel industry and those of the Railroad Administration.

April 23—President Wheelwright, of the National Coal Association, appoints a foreign trade committee of seven members to consider the formation of an export association under the Webb-Pomerene law for the coal industry. T. V. Farrell, of the Pocahontas Fuel Co., is chairman of the committee.

April 25—The child-labor provisions of the new revenue bill become effective and will tend to stop the employment of boys under 16 years of age in or about mines in any capacity. Violation of this law will subject the employer's business to a tax of 10 per cent.

April 26—The strike of the 6,000 mine workers of the Central Coal & Coke Co. is settled on the agreement that the mining machines and loaders start simultaneously [XV, 917].

April 29—A gas explosion in the Regal mine of the Majestic Coal Co., of Alabama, results in the death of 21 employees [XV, 885].

May

May 2—The U. S. Circuit Court of Appeals hands down a conditional affirmation of the judgment rendered by the District Court in the case of the Coronado County Mining Co., of Sebastian County, Ark. vs. the United Mine Workers of America [XV, 873].—Charles D. Neill hands down a decision under which 200 contract miners of the Lehigh & Wilkes-Barre Coal Co. will receive back pay for work done since 1917. The point at issue was payment for the removal of rock in the robbing of pillars [XV, 916].

May 3—A disastrous accident occurs at the mine of Old Ben Coal Corporation, at Buckner, Ill. As several men are being hoisted out of the mine on a cage, one is killed and three others are injured [XV, 930].—The Western Coal Operators' Association of Canada meets and discusses the position of the coal industry in regard to the labor question [XV, 1093].

May 5—Charles P. Neill rules that contract miners who are taken off their regular work for an emergency job, shall be paid the rate called for in their scale if the pay for the other job is less [XV, 916].—A cage containing ten miners drops 1100 ft. at the Maple Hill shaft of the Philadelphia & Reading Coal & Iron Co., resulting in the death of one miner and the serious injury of the nine other men, two of whom may die [XV, 885].

May 7—A new workmen's compensation bill is introduced at the Pennsylvania legislature by Senator Smith [XV, 929].—The peace treaty and the constitution of the league of nations (one document), framed by the peace conference at Paris, is handed to the German plenipotentiaries.

May 8—An open market for steel products is created, when representatives of the Railroad Administration and members of the general committee of the American Iron and Steel Institute fail to agree on minimum stabilization prices—Charles P. Neill rules that mine workers cannot be expected to be reinstated in their jobs if the operators can show that they were discharged for incompetency, in dismissing the complaint of H. C. Singley against the Evans Colliery Co., of Beaver Meadow, Pa.

May 9—The resignation of the Industrial Board, George N. Peek, chairman, is accepted by Secretary Redfield. Upon retiring the board releases all industries from its findings.

May 10—Attorney General Mitchell Palmer makes public an opinion to the effect that the Redfield plan for stabilizing prices in industry violates the anti-trust laws; he declares price fixing illegal. Any

modification of statutes upholding a non-competitive policy must come from Congress.

May 16—The Northeast Kentucky Coal Association holds a special meeting at Ashland, Ky. Income tax statements and freight rates are discussed [XXV, 1018].

May 20—Congress opens at Washington, D. C., and President Wilson's message is read to the two houses.

May 22-24—The National Coal Association holds its annual meeting at Chicago in the Congress Hotel. The convention elects officers for the ensuing year [XV, 1,000].

May 26—The Caldwell Bill, proposing a loan of the Government's surplus machine tools to various technical institutions in the U. S., is introduced in the U. S. House of Representatives [XV, 1,090].

May 27—The Ohio Valley Coal Operators' Association secures an order from the Interstate Commerce Commission directing the railroads to make marked reductions in rates on coal from western Kentucky [XV, 1,063]. John P. Reese, vice president and general manager of the Chicago & Northwestern coal properties, dies at his home in St. Louis, Mo. [XV, 1,065].

May 28—A committee of senators of the Pennsylvania Legislature confer with anthracite coal operators in regard to the mine-cave question [XV, 1,063].

May 29—It is recorded that all mine workers are out in District 18 (eastern British Columbia and Alberta) as a result of a disagreement about wages [XV, 1,052]. The Shipping Board holds a meeting of representatives of producers, exporters and brokers, at which the export situation is discussed [XV, 1,060].

May 29-30—The first meeting of the Coal Mining Electricians' and Mechanics' Institute is held at Charlestown, W. Va. [XV, 1,076].

June

June 2—The final report of the Canadian Fuel Controller is presented to the Canadian House of Commons [XV, 1,184]. Senator Davis introduces a bill in the Pennsylvania Senate relative to mine-cave conditions in the anthracite field [XV, 1,101].

June 3—The Second Pan-American Conference begins a 4-day session at Washington, D. C., with delegates from North and South America in attendance. The Pittsburgh Coal Producers' Association holds an important meeting at Pittsburgh discussing the present and future coal situation [XV, 1,102].

June 3 to 4—The West Virginia Coal Mining Institute holds its twentieth semi-annual meeting in Huntington, W. Va., at Hotel Frederick. Papers are read and discussed [XV, 1,018].

June 4—The Pennsylvania Senate passes the McConnell bill relating to insurance [XV, 1,101].

June 4 to 5—The Western branch of the Canadian Mining Institute holds a meeting at Nanaimo, B. C. [XVI, 66].

June 5—An ignition of powder takes place on a man trip in the Baltimore tunnel of the Hudson Coal Co., at Wilkes-Barre, Pa.; 92 men lose their lives as a result [XV, 1,076].

June 10—The annual meeting of the West Virginia Coal Association is held at Huntington, W. Va., when officers are elected and the question of a continuation of Government supervision of the coal industry is discussed [XV, 1,183].

June 11—The employees of Vesta No. 5, of the Jones & Laughlin company, return to work after a strike of eight weeks [XV, 1,173].

June 15—A secret session of past and present chiefs of the United Mine Workers of America is held at Atlantic City, N. J. [XV, 1,172].

June 16—After a strike of one week, the Norfolk & Western Ry. motive-

power employees return to work [XV, 1,173].—A strike of the Federation of Miners of France takes place, involving all the mine workers of that country, on a question of working time [XV, 1,132].

June 17—The Flynn anti-sedition bill is defeated in the Pennsylvania House of Representatives [XV, 1,183].

June 18—The Coal-mine superintendents of Peoria, Fulton and Tazewell counties, Illinois, meet at Canton, perfect an organization and elect officers [XVI, 36].

June 23—The American Federation of Labor meeting at Atlantic City declares itself in favor of a universal 44-hour week [XV, 1,172].

June 23-24—A conference of prominent educators is held in Washington, D. C.; the economic and business training of engineers being discussed [XVI, 65].

June 23-25—The coroner's jury sits at Wilkes-Barre, Pa., on the Baltimore tunnel disaster of the Hudson Coal Co. It refuses to fix the blame for the accident [XVI, 55-58].

June 25—Bills are introduced in each house of Congress proposing that the Federal Department of the Interior become the Department of Public Works [XVI, 17].

June 26—Jerome Watson, Chief Deputy and Safety Commissioner of Mines of the state of Ohio, sends a communication to the operators and miners of that commonwealth relative to the conveying of explosives into mines [XVI, 78].—A meeting of the executive board of the three anthracite districts of the United Mine Workers is held at Wilkes-Barre, Pa., to decide on details of the next tridistrict convention [XVI, 25].

June 26-28—The U. M. W. conferences started at Atlantic City commence anew at Charleston, W. Va. [XVI, 64].

June 27—The sedition bill is finally put through the Pennsylvania Legislature and signed by the governor. The bill amending the workmen's compensation law is also signed [XVI, 35].—Joint conferences of operators and mine workers are held in the Alabama district [XVI, 64].

June 28—The signing of the peace treaty takes place in Paris.

June 30—The Fuel Administration passes out of existence [XVI, 21].—An explosion occurs in the No. 15 mine of the Rock Island Coal Mining Co., at Alderson, Okla., with disastrous consequences [XVI, 79].

July

July 1—W. A. Hurst, of Williamson, W. Va., dies [XVI, 127].—W. G. Sharp, president of U. S. Smelting, Refining and Mining Co., dies in Boston, Mass. [XVI, 232].—Amendments to the Coal Mines Regulation Act, of Canada, come into effect. They have to do with the examination of coal mine officials and miners [XVI, 78].

July 5—Employees (3,000) in the Belleville mining district of Illinois, near St. Louis, Mo., go on strike [XVI, 284].

July 7—Three men are killed and seven others seriously injured by fall of rock and earth at O'Neill mine of Pittsburgh Coal Co., near Fayette City, Pa. [XVI, 125].

July 7—Rocky Mountain Institute meets at Salt Lake City, Utah. Papers are read and discussed and mines visited [XVI, 196].

July 8—The surface plant of the Hafer Washed Coal Co., at Carterville, Ill., is destroyed by fire [XVI, 126].

July 9—The board of directors of the National Coal Association hold a meeting in Kansas City, at which important questions are discussed [XVI, 124].—Six men are killed and ten others are seriously injured in explosion at colliery of Lehigh Coal & Navigation Co., Lansford, Pa. [XVI, 125].

July 9-11—The tenth annual meeting of

the Mine Inspectors' Institute of America is held at Indianapolis, Ind. [XVI, 144].

July 14—The agreements entered into with the War Trade Board by parties in the United States in connection with sale or delivery of coal, coke and oils, are cancelled [XVI, 155].

July 15—The Leggetts Creek colliery of the Hudson Coal Co., Scranton, Pa., is purchased by syndicate of Boston and Cleveland capitalists [XVI, 170].

July 17—Some 2,500 miners strike at the mines of the Central Coal & Coke Co., in Missouri and Kansas [XVI, 200].

July 18—The Commissioner of Internal Revenue announces that \$1,500,000 will be returned to exporters of coal [XVI, 154].—An explosion of gas at the Carswell mine of the Houston Collieries Co., near Welch, W. Va., causes the death of six men [XVI, 191].—An investigation to determine whether the steady advance in the price of coal since the signing of the armistice is due to economic causes or to profiteering, is proposed in a resolution introduced in the Senate by Senator Frelinghuysen, of New Jersey.

July 21—The increase of six shillings (\$1.50) per ton on price of coal in Great Britain comes into effect [XVI, 158].—Announcement is made of the retirement of F. J. Hayes from the presidency of the United Mine Workers [XVI, 243].

July 22—The operators and mine workers of the New River, W. Va., field hold a conference at Charleston [XVI, 200].—The Attorney General of Pennsylvania hands down an important "boundary pillar" decision [XVI, 209].

July 24—Governor Sproul, of Pennsylvania approves the amendments to the Workmen's Compensation Insurance acts [XVI, 209].—Senator Lenroot introduces a bill in the U. S. Senate to provide for the leasing of coal deposits owned by this country outside of Alaska [XVI, 240].—Senator Lenroot introduces a bill in the Senate at Washington to provide for the disposal of non-metalliferous mineral deposits owned by the United States separate from the surface of the lands wherein they lie, and for other purposes [XVI, 240].

July 25—The Oklahoma Coal Producers' Association holds a special session at McAlester, Okla., to discuss fuel oil competition [XVI, 253].—The strike of the miners of Great Britain (with the exception of the Yorkshire men) ends [XVI, 199].—District 1, of the United Mine Workers of America, holds an important meeting at Scranton, Pa. [XVI, 243].

August

Aug. 1—A wage increase is announced in the Pocahontas field of West Virginia [XVI, 284].—The 8-hour day goes into effect in the Pocahontas field [XVI, 284].—The operators of the Tug River field meet in Bluefield, W. Va., and adjust their scale of wages to that of Pocahontas field [XVI, 284].

Aug. 4—President Kenney finishes conference with operators at Buckhannon and Adrian, W. Va., a new contract being signed by all but one company [XVI, 284].

Aug. 6—After this date production of coal is entirely suspended at mines on Chesapeake & Ohio R.R. pending settlement of shoemen strike on the railroad [XVI, 293].

Aug. 7—An explosion occurs at the Weirwood mine of the New River & Pocahontas Consolidated Coal Co., in Fayette County, W. Va., in which seven men are killed [XVI, 294].

Aug. 8—The policy committee of the United Mine Workers reports it has prepared recommendations to be presented to the convention of the union in Cleveland, Ohio, in September [XVI, 283].

Aug. 12—The U. S. War Labor Board

meets at New York City and formally ends its existence.—The Yorkshire Miners' Council of England recommends a return to work, which is accepted by all but the men in the West Yorkshire section [XVI, 331].—Mine cave in West Scranton buries boy causing his death. Public action is taken in the matter [XVI, 340].

Aug. 13—Convention of United Mine Workers' District 12, is held at Belleville, Ill. [XVI, 331].—The Yorkshire miners in England vote to return to work. These 200,000 miners held out after the majority of the mine employees of Great Britain had returned to work on July 25.

Aug. 14-15—Shopmen of C. & O. return to work making it possible for mines to resume operation [XVI, 341].—Walker D. Hines sends letter to Vice President Marshall touching on congressional inquiry into coal situation [XVI, 267].—The Williamson, or Thacker, W. Va., non-union field decides to advance wages and shorten hours to eight per day [XVI, 372].

Aug. 18—An explosion occurs in the Oakview mine of the Oakdale Coal Co., in Colorado, in which 18 men are killed [XVI, 385].—The C. & O. moves empties to mines in its territory following resumption of work by shopmen [XVI, 383].

Aug. 19—Districts 1, 7 and 9, United Mine Workers, meet at Wilkes-Barre, Pa. [XVI, 372].

Aug. 20—Committee of Guyan, W. Va., operators appeals to manager of Eastern Car Pool for better car supply [XVI, 383].

Aug. 21—Employees at Plymouth district of Hudson Coal Co., Pennsylvania anthracite field, go on strike [XVI, 414].—The operators' association of the Williamson, W. Va., field meet to discuss wage situation [XVI, 455].

Aug. 22—The scale committee makes its report to the convention of United Mine Workers' Districts 1, 7 and 9, at Wilkes-Barre, Pa. [XVI, 412].

Aug. 25—President Wilson issues statement referring to threatened strike of railway shopmen [XVI, 431].

Aug. 26—Director General of Railroads Walker D. Hines issues statement (supplementing his statement of Aug. 14) concerning the coal-car supply [XVI, 443].—J. D. A. Morrow gives important testimony before Senate committee conducting inquiry into the coal situation [XVI, 366].—Walter Nesbit, of Illinois United Mine workers, issues ultimatum to striking locals to return to work or be expelled [XVI, 414].

Aug. 30—Fire destroys surface plant of Springside mine of Smith-Loehr Coal Mining Co., Pana, Ill. [XVI, 463].

September

Sept. 1—International mine-rescue and first-aid contest takes place at Nanaimo, B. C., under the auspices of the Vancouver Island Mine Safety Association [XVI, 577].—Employees of Canadian Western Fuel Co. receive an advance of 25c. a day [XVI, 467].

Sept. 3—H. Y. Saint, head of the export coal department of the Shipping Board, appears before the Senate Committee investigating the coal situation [XVI, 451].

Sept. 5—William C. Redfield, Secretary of Commerce, hands in his resignation to President Wilson. Follows failure of Industrial Board (organized by Redfield) to stabilize prices—Grievance Committee of Powderly, No. 1, and Jermyn collieries, at Carbondale, Pa., meet with Hudson Coal Co. officials without securing concessions, and order general suspension at all mines of the company [XVI, 455].

Sept. 6—Miners at larger operations on Kanawha & Michigan R.R., on Kanawha River, W. Va., start an invasion of Guyan Valley. Miners

from other nearby points start for points in Boone and Logan counties. Action taken by Governor Cornwall of West Virginia [XVI, 455, 456].

Sept. 8—Most of miners who marched to points in Guyan Valley, W. Va., back to work [XVI, 456].—Governor Cornwall issues a statement relative to further disorders of recent Guyan Valley raid order [XVI, 498].—Some 20,000 men of 30 mining plants of Hudson Coal Co., in Lackawanna and Wyoming Valley, Pa., go out on strike [XVI, 455].—An order is issued to start strike of mine workers of Delaware, Lackawanna & Western R.R. Co., Coal Department, to take effect on Sept. 9 [XVI, 498].

Sept. 9—Convention of United Mine Workers of America meets in Cleveland, Ohio, to formulate a wage scale [XVI, 454].—John Mitchell dies at the Post-Graduate Hospital in New York City [XVI, 491].—The Twenty-seventh Consecutive and Fourth Biennial Convention of United Mine Workers of America, meets in Cleveland, Ohio [XVI, 496-7].

Sept. 10—Senate Investigating Committee considers export coal situation [XVI, 492-3].

Sept. 11—The locals of men employed by the Hudson Coal Co. vote to go back to work on Sept. 13 [XVI, 498].

Sept. 12—The committee on Railroad Relations of the National Coal Association and representatives of the U. S. Railroad Administration held a session at White Sulphur Springs, W. Va. [XVI, 552].

Sept. 15—The mine workers of the Hudson Coal Co. return to work [XVI, 539].

Sept. 17—The Delaware, Lackawanna & Western mine workers return to work [XVI, 539].

Sept. 22—Investigation starts relative to conditions in Guyan field in W. Va.; also raid of Boone County by mine workers [XVI, 539].—The American Institute of Mining and Metallurgical Engineers meets at the Congress Hotel in Chicago, Ill. [XVI, 606].—Arthur H. Storrs dies at Pelham Manor, N. Y. His home was at Scranton, Pa. [XVI, 696].

Sept. 25—The Chicago meeting of the American Institute of Mining and Metallurgical Engineer concludes its sessions [XVI, 609].

Sept. 29—The Pittsburgh station building of the Bureau of Mines is dedicated formally at Pittsburgh, Pa. Many notables present—Anthracite operators grant the demands of their miners to pay war-scale wages until Mar. 31, 1920. This action eliminates the probability of a general strike in the anthracite fields on Nov. 1 [XVI, 611].

Sept. 30—The preliminary mine-rescue contests of the national first-aid and mine-rescue meet is held in Pittsburgh, Pa., in conjunction with dedication of the Bureau of Mines building [XVI, 614].

October

Oct. 1—The finals of mine-rescue competition of the national first-aid and mine-rescue meet is held in Pittsburgh, Pa., in conjunction with dedication of the Bureau of Mines buildings [XVI, 615].

Oct. 1 to 4—The Eighth Annual Safety Congress of the National Safety Council is held at Hotel Statler, Cleveland, Ohio [XVI, 618 to 623].

Oct. 10—The operatives of the Central Competitive district meet (at Hotel Bellevue-Stratford, in Philadelphia, Pa.) with the officials appointed by the United Mine Workers of America, in a wage conference [XVI, 657].

Oct. 12—The wage conference of the Central Competitive district and of-

ficials of the United Mine Workers of America, at Philadelphia, adjourn without having come to any agreement [XVI, 657].

Oct. 15—An order is issued to members of the United Mine Workers of America, in the bituminous regions of the United States, to cease work at midnight of Oct. 31, 1919 [XVI, 657].—Secretary of Labor W. B. Wilson summons John L. Lewis, acting president of U. M. W., and Thomas T. Brewster, spokesman of the bituminous coal operators, to meet him on Oct. 17 [XVI, 657].

Oct. 17—A conference is held at Washington, D. C., between W. B. Wilson, Secretary of Labor; John L. Lewis, acting president of U. M. W.; Thomas T. Brewster, representing the coal operators of the Central Competitive district. A meeting is called for Oct. 21, 1919, to debate the issue in question [XVI, 690].

Oct. 21-25—Operators meet mine workers in conference at Washington, D. C., as agreed at the Oct. 17 conference [XVI, 690 to 691].

Oct. 24—From 3,000 to 5,000 miners meet at Charleston, W. Va., and discuss invasion of Guyan field. Governor Cornwall wires acting president John L. Lewis, of the United Mine Workers, in regard to invasion.—The last Government effort to avert the coal strike fails. Even an appeal from President Wilson to the operators and miners in conference at Washington, brings no results.

Oct. 25—President Wilson issues statement saying a coal strike would be considered a grave moral and legal wrong against the Government and that the law will be enforced. The President requests that the strike order be recalled.—Numerous strikes are on in District 11 of the United Mine Workers of America. This includes most of Indiana's coal fields.

Oct. 28—William Beury, a prominent coal operator of southern West Virginia, dies at his home in Philadelphia, Pa. [XVI, 764].

Oct. 29—Fire starts in mine No. 2 of the Youghiogheny & Ohio Coal Co., at Amsterdam, Ohio. As a result, 20 men lose their lives; thousands of dollars are lost [XVI, 792].—A conference of the International Executive Board, Scale Committee and district presidents of the United Mine Workers of America takes place in Indianapolis, Ind., to consider the strike situation, especially President Wilson's request that the strike order be recalled. District presidents and Scale Committee leave for their homes to direct the strike.

Oct. 30—The Executive Board of the United Mine Workers of America continues in session at Indianapolis, Ind.

Oct. 31—The executive committee of the Central Competitive field meets in conference at Cleveland, Ohio, to take action on the nation-wide strike scheduled for midnight. The conference then adjourns.—Troops are secretly moved to strategic points in coal states to be affected by strike order at midnight.—Federal Judge A. B. Anderson issues a temporary restraining order to prevent union officials from issuing instructions to union members relative to the strike or paying strike benefits from union funds. This order is issued at request of special assistant U. S. Attorney General A. B. Ames.

November

Nov. 1—Union mine workers in the bituminous coal regions of the United States go out on strike starting at midnight of Oct. 31-Nov. 1. Non-union mines working at top speed throughout the country. According to state the situation is as follows: Pennsylvania, three-fifths working; West Virginia, over one-half working; Virginia, working; Kentucky, under half working; Ohio,

- Indiana and Illinois, all mines close; Tennessee, not working; Alabama, mainly working; mines in Southwest close down (except New Mexico); Colorado, indefinite; Utah, working; Washington mines close down—Director General Hines, of the Railroad Administration, issues war-time priorities order for coal shipment.
- Nov. 2—Pennsylvania State Federation of Labor holds a meeting in Pittsburgh and authorizes its executive council to call a state-wide strike to enforce a change in the policy and laws of the state.
- Nov. 5—President Wilson authorizes Dr. H. A. Garfield, Fuel Administrator, to regulate the price, distribution, production, sales, shipment, apportionment and storage of all coal, including anthracite and coke.
- Nov. 9—The Executive Council of the American Federation of Labor pledges to the United Mine Workers, the full support of its members in the bituminous coal strike. Comment on this action is made in address by Charles Piez [XVI, 882].
- Nov. 10—The officials and executive board of the United Mine Workers of America meet at Indianapolis, to take action as to whether they would comply with the order of Federal Judge A. B. Anderson to call off the coal strike.
- Nov. 11—Thomas T. Brewster, chairman of the Executive Committee of the bituminous coal operators of the Central Competitive field, asks John L. Lewis, acting president of U. M. W., and its wage scale committee, to meet the scale committee of the operators at Washington, D. C., on Nov. 17, to negotiate a contract—The general committee of the United Mine Workers of America, meeting in Indianapolis, decides at an early hour this morning, to comply with the mandate of the court to withdraw the strike order. This order is mailed to the various locals throughout the country before 6 P.M. today as per the order of the court—A conference proposed by T. T. Brewster is declined by the United Mine Workers who accept an invitation of Secretary of Labor Wilson to meet the bituminous operators of the country at Washington, D. C., on Nov. 14.
- Nov. 13—The State of North Dakota operates the lignite mines of the state. Operators and miners from all districts report to Governor Frazier.
- Nov. 14—Secretary of Labor William B. Wilson, representing the Federal Government, opens the conference of operators and miners at Washington, D. C. He submits a definite plan.
- Nov. 15—Operators and miners in conference at Washington reach an agreement to negotiate a new wage contract through scale committees of the Central Competitive field.
- Nov. 17—Judge W. L. Menzies of the district court, at Bismarck, N. D., hears petition for injunction commanding State of North Dakota to refrain from operating plant of Washburn Lignite Coal Co. at Wilton—The State of Kansas takes over all its coal mines under a receivership plan. The receivership is based on the state's right to protect its citizens. Under the court's order, the receivers will have full charge of production, sales and distribution of coal from the Kansas mines—The twenty-second annual convention of the American Mining Congress assembles at the Exposition Building, St. Louis, Mo., the session to last until Friday, Nov. 21 [XVI, 797].
- Nov. 20—Operators in conference with miners at Washington, D. C., offer 15c. a ton and 20 per cent day-wage increase to miners.
- Nov. 21—At operators and miners wage conference at Washington, miners reject 20 per cent wage-increase offer of operators. Miners propose 40 per cent increase instead of 60 and drop 30-hour week demand. Operators reject miners' new demands and withdraw their 20 per cent increase offer.
- Nov. 22—The State of North Dakota surrenders control of the Washburn Lignite Coal Co.'s mines at Wilton, as per order of N. D. Supreme Court.
- Nov. 22—Secretary of Labor W. B. Wilson makes public his offer of 27.12c. a ton increase in mining rates; an increase of \$1.53 in day's wages; an increase in yard and dead work of \$1.61 per cent. The operators reject this offer and the miners accept it. The offer was submitted on Nov. 19.
- Nov. 24—Former Secretary William G. McAdoo, of the Treasury, wires Fuel Administrator Garfield to let operators stand increase in miners' wages, as operators made profits as high as 2,000 per cent during 1917, as shown by income tax returns. Also that earnings of 100 to 300 per cent on capital stock were not uncommon.
- Nov. 25—Two meetings are held by the Cabinet during the day, at which the coal situation is discussed; adjournment is taken until next day when the subject will be taken up again. Operators and miners meet and adjourn to await outcome of Cabinet meeting.
- Nov. 26—Tippie of the Washburn Lignite Coal Co., at Wilton, N. D., burns to the ground [XVI, 905]—Henry D. Merrill, pioneer coal operator and iron manufacturer dies at the home of his daughter in Birmingham, Ala., at 85 years of age [XVI, 906].
- Nov. 27—Dr. H. A. Garfield proposes 14 per cent increase in miners' wages without increase in price of coal; operators accept terms and miners reject them. Garfield offer is backed by the Government. Negotiations between operators and miners at Washington, come to an end.
- Nov. 28—A committee of coal operators at Washington, D. C., notifies operators to post notice of increase in wages as ordered by the Government [XVI, 857].
- Nov. 30—Governors of Illinois, Indiana, Iowa, Missouri, Oklahoma, Tennessee and Kansas meet in Chicago and agree on state and Federal action in regard to coal situation.

December

- Dec. 1—The semi-annual meeting of the West Virginia Coal Mining Institute is held at Huntington, W. Va. Two days are given to the reading and discussion of papers, business and election of officers [XVI, 826]—Production of coal in the strip mines of Pittsburgh, Kan., begins. Volunteer workers are protected by troops. Letter of J. D. A. Morrow to Secretary of the Treasury Carter Glass, relative to profits of coal operators in 1917, is made public [XVI, 892]—Concerted action by governors of six central western states is postponed for one week and conference agrees to meet again in St. Louis. Plan of governors is stated to include pooling of coal mined by nation.
- Dec. 2—H. C. Frick dies at his home in New York City at the age of 70 years [XVI, 835].
- Dec. 3—Information charging criminal contempt of court is filed by the Federal Government, before Judge A. B. Anderson, in the U. S. District Court at Indianapolis, Ind., against 84 international and district officers of the United Mine Workers of America. Violation of Judge Anderson's anti-mine strike injunction is charged.
- Dec. 3 and 4—The annual session of the Coal Mining Institute of America is held at Pittsburgh, Pa. Papers are read and discussed; a banquet is held and officers elected [XVI, 839].
- Dec. 5—Governor James M. Cox, of Ohio, holds conference at Columbus, at which operators and miners make statements regarding the coal-strike situation. The governor makes an effort to have mines reopened. He proposes 25 per cent increase in wages.
- Dec. 6—The Fuel Administration issues an order (effective Dec. 8) relative to prices of coke [XVI, 875].
- Dec. 9—The general committee of the United Mine Workers of America meets at Indianapolis, Ind., to consider President Wilson's proposal for ending the coal strike. The plan is kept secret.
- Dec. 10—The general committee of the United Mine Workers of America, in session at Indianapolis, votes to accept President Wilson's proposal for immediate return to work pending final settlement, of the controversy with operators, by a commission to be appointed by him. Telegrams are sent out to 4,000 locals of the union, by officials of U. M. W., instructing these men to return to work immediately on a basis of an increase of 14 per cent in wages.
- Dec. 12—The operators of central Pennsylvania issue a statement protesting the manner of settling the coal strike [XVI, 935]—Joseph B. Dickson, a prominent anthracite coal operator, dies at the Post-Graduate Hospital, in New York City, following an operation [XVI, 947]—Dr. H. A. Garfield, Fuel Administrator, hands in his resignation to President Wilson.
- Dec. 13—Dr. H. A. Garfield's resignation, as Fuel Administrator, is accepted by President Wilson. Dr. Garfield objects to terms of strike settlement; he objects to make up of board of arbitration and increase in price of coal, the latter of which is possible.
- Dec. 20—President Wilson appoints commission of three to carry out the Government's plan to settle the soft coal strike. The following were named: Henry M. Robinson, Pasadena, Cal., representing the public; John P. White, representing the miners; Rembrandt Peale, of Pennsylvania, for the operators.
- Dec. 22—Alexander Howat, president of the Kansas district of the United Mine Workers of America, is remanded to jail by U. S. District Judge Anderson, of Indianapolis, charged with contempt of court in furthering the coal strike in Kansas.
- Dec. 23—A statement from Phil H. Pena, spokesman for the operators of the Central Competitive field, notes that the attitude of the operators has not been changed since they agreed to a plan similar to President Wilson's scheme for settling the miner's wage controversy. The operators will abide by the decisions of the commission appointed by the President, but believe they should have been consulted before the plan was presented to the miners—Alexander Howat, president of the Kansas district of U. M. W., is released from jail and allowed to return to Kansas, on agreeing to call off the strike of miners in his district and to order the miners back to work.
- Dec. 29—Coal operators from the Central Competitive field confer in Chicago, and declare they will assume no increase in miners' wages above the 14 per cent granted in the strike settlement, unless the commission should shoulder the responsibility of the increased price to the consumer—The commission, appointed by the President to settle the controversy between the operators and the miners, meets in Washington and maps out program for its work; Henry M. Robinson is chairman. Hearings relative to wages and prices will be started on Jan. 12, in Washington.

CURRENT PRICES—MATERIALS & SUPPLIES

IRON AND STEEL

PIG IRON—Quotations compiled by the Matthew Addy Company as per Department of Commerce Committee Schedule.

	Current	One Month Ago
CINCINNATI		
No. 2 Southern	\$39.10	\$36.60
Northern Basic	38.20	31.05
Southern Ohio No. 2	40.80	31.55
NEW YORK, Tidewater delivery		
2X Virginia (silicon 2.25 to 2.75)	45.65	39.40
Southern No. 2 (silicon 2.25 to 2.75)	43.20	41.40
BIRMINGHAM		
No. 2 Foundry	35.50	33.00
PHILADELPHIA		
Eastern Pa.	42.50*	38.10*
Virginia No. 2	40.00*	39.10*
Basic	40.00†	34.60†
Grey Forge	39.50*	34.60*
CHICAGO		
No. 2 Foundry Local	40.00	36.25
No. 2 Foundry Southern	40.50	38.00
PITTSBURGH, including freight charge from the Valley		
No. 2 Foundry Valley	39.40	34.40
Basic	36.40	34.40
Bessemer	37.40	35.40

* F. o. b. furnace. † Delivered.

STRUCTURAL MATERIAL—The following are the base prices, f.o.b. mill, Pittsburgh, together with the quotations per 100 lb. from warehouses at the places named:

	Mill Pittsburgh	Current	—New York— One Year Ago	St. Louis	Chicago
Beams, 3 to 15 in.	\$2.45	\$3.47	\$4.27	\$3.54	\$3.47
Channels, 3 to 15 in.	2.45	3.47	4.27	3.54	3.47
Angles, 3 to 6 in., 1 in. thick	2.45	3.47	4.27	3.54	3.47
Tees, 3 in. and larger	2.45	3.47	4.27	3.54	3.47
Plates	2.65	3.67	4.52	3.54	3.67

BAR IRON—Prices in cents per pound at cities named are as follows:

	Pittsburgh	Cincinnati	St. Louis	Denver	Birmingham
2.75	3.50	3.44	4.30	3.75	

NAILS—Prices per keg from warehouse in cities named:

	Mill Pittsburgh	St. Louis	Denver	Chicago	Birmingham	San Francisco	Dallas
Wire	\$3.25	\$3.90	\$4.90	\$3.90	\$5.25	\$5.25	\$5.00
Cut	4.925	5.40	5.61	5.50	6.65	6.65	6.40

TRACK SUPPLIES—The following prices are base per 100 lb. f.o.b. Pittsburgh for carload lots, together with the warehouse prices at the places named:

	Pittsburgh	Chicago	St. Louis	San Francisco	Birmingham	Denver
Standard railroad spikes 1½-in. and larger	\$3.35	\$4.27	\$4.44	\$5.65	\$4.50	\$5.05
Track bolts	4.35	5.17	Prem.	6.65	6.00	6.05
Standard section angle bars	3.00	4.22	Prem.	4.60	4.40	

COLD FINISHED STEEL—Warehouse prices are as follows:

	New York	Chicago	Cleveland	St. Louis
Round shafting or screw stock, per 100 lb. base	\$5.00	\$4.90	\$4.75	\$5.00
Flats, squares and hexagons, per 100 lb. base	5.50	5.40	.....	5.50

HORSE AND MULE SHOES—Warehouse prices per 100 lb. in cities named:

	Mill Pittsburgh	Cincinnati	Chicago	St. Louis	Denver	Birmingham
Straight	\$5.75	\$7.50	\$6.50	\$7.00	\$8.15	\$7.00
Assorted	5.85	7.50	6.50-7.00	7.25	8.40	7.25

Cincinnati—Horseshoe nails sell for \$4.50 to \$5 per 25-lb. box.

CAST-IRON PIPE—The following are prices per net ton for carload lots:

	—New York— One Month Ago	—Chicago— One Year Ago	St. Louis	San Francisco	Dallas
4 in.	\$65.30	\$65.30	\$70.70	\$69.80	\$61.00
6 in. and over	62.30	62.30	67.70	66.80	58.00

Gas pipe and 16-ft. lengths are \$1 per ton extra.

STEEL RAILS—The following quotations are per ton f.o.b. Pittsburgh and Chicago for carload or larger lots. For less than carload lots 5c. per 100 lb. is charged extra:

	—Pittsburgh— Current	—Chicago— One Year Ago	Current	One Year Ago
Standard Bessemer rails	\$45.00	\$55.00	\$45.00	\$65.00
Standard openhearth rails	47.00	57.00	47.00	67.00
Light rails, 8 to 10 lb.	2.58*	3.13*	2.58*	3.13*
Light rails, 12 to 14 lb.	2.54*	3.09*	2.54*	3.09*
Light rails, 25 to 45 lb.	2.45*	3.00*	2.45*	3.00*

* Per 100 lb.

OLD MATERIAL—The prices following are per gross ton paid to dealers and producers in New York. In Chicago and St. Louis the quotations are per net ton and cover delivery at the buyer's works, including freight transfer charges:

	New York	Chicago	St. Louis
No. 1 railroad wrought	\$28.00	\$24.00	\$23.00
Stove plate	21.00	27.00	27.00
No. 1 machinery cast	32.00	33.50	30.00
Machine shop turnings	15.00	10.50	13.00
Cast borings	17.00	12.50	11.50
Railroad malleable cast	23.00	25.00	23.00

COAL BIT STEEL—Warehouse price per pound is as follows:

	New York	Cincinnati	Birmingham	St. Louis	Denver
\$0.12	\$0.16†	\$0.18	\$0.11	\$0.18†	

DRILL STEEL—Warehouse price per pound:

	New York	St. Louis	Birmingham	Denver
Solid	14c.	13c.	15c.	15c.
Hollow	17c.	....	....	22c.

PIPE—The following discounts are for carload lots f.o.b. Pittsburgh; basing card of Jan. 1, 1919 for steel pipe and for iron pipe:

BUTT WELD			
Inches	Steel Black	Galvanized	Iron Black
1, 1½ and 2	50½%	24%	30½%
2½ to 3	54½%	40%	23½%
4 to 6	57½%	44%	

LAP WELD			
Inches	Steel Black	Galvanized	Iron Black
2	50½%	35%	32½%
2½ to 6	53½%	41%	34½%

BUTT WELD, EXTRA STRONG PLAIN ENDS			
Inches	Steel Black	Galvanized	Iron Black
1, 1½ and 2	46½%	29%	39½%
2½ to 6	51½%	39%	24½%
4 to 12	55½%	43%	

LAP WELD, EXTRA STRONG PLAIN ENDS			
Inches	Steel Black	Galvanized	Iron Black
2	48½%	37%	33½%
2½ to 4	51½%	40%	23½%
4½ to 6	50½%	39%	34½%

Stocks discounts in cities named are as follows:

	—New York— Black	—Cleveland— Galvanized	—Chicago— Black	—Chicago— Galvanized
1 to 3 in. steel butt welded	47%	31%	43½%	57½%
3½ to 3 in. steel lap welded	42%	27%	39½%	53½%

Malleable fittings. Class B and C, from New York stock sell at list + 12½%. Cast iron, standard sizes, 10% off.

WIRE ROPE—Discounts from list price on regular grades of bright and galvanized are as follows:

	New York and St. Louis
Galvanized iron rigging	+12½%
Galvanized cast steel rigging	7½%
Bright plain rigging	35%
Bright cast steel	22½%
Bright iron and iron tiller	5%

STEEL SHEETS—The following are the prices in cents per pound from jobbers' warehouse at the cities named:

	Pittsburgh, Mill in Carloads	—New York— One Month Ago	—Chicago— One Year Ago	—Cleveland— Current	—Chicago— Current
*No. 28 black	4.35-4.85	7.00-8.00	5.62	6.52	5.77
*No. 26 black	4.25-4.75	6.90-7.90	5.52	6.42	5.67
*Nos. 22 and 24 black	4.20-4.71	6.85-7.85	5.47	6.37	5.62
Nos. 18 and 20 black	4.15-4.65	6.80-7.80	5.42	6.32	5.57
No. 16 blue annealed	3.75-4.20	5.27	4.77	5.72	5.17
No. 14 blue annealed	3.65-4.10	5.17	4.67	5.62	5.07
No. 10 blue annealed	3.55-4.00	5.07-6.00	4.57	5.52	4.97
*No. 28 galvanized	5.70-6.20	7.75-9.00	7.42	7.77	7.12
*No. 26 galvanized	5.40-5.90	7.45	7.12	7.47	6.82
No. 24 galvanized	5.25-5.75	7.30	6.97	7.32	6.57

* For painted corrugated sheets add 30c. per 100 lb. for 25 to 28 gages; 25c. for 19 to 24 gages; for galvanized corrugated sheets add 15c., all gages.

SHOP SUPPLIES

NUTS—From warehouse at the places named, on fair size orders, the following amount is deducted from list:

	New York Current	—Cleveland— Current	—Chicago— One Year Ago	—Chicago— Current	—St. Louis— Current
Hot pressed square	List	\$1.00	\$1.25	\$1.45	\$0.98
Hot pressed hexagon	List	1.00	1.05	1.45	0.78
Cold punched square	List	1.00	.75	1.05	1.00
Cold punched hexagon	List	1.00	.75	1.05	1.00

Semi-finished nuts sell at the following discounts from list price:

	Current	One Year Ago
New York.....	70-5%	50-10%
Chicago.....	50%	50%
Cleveland.....	60-10%	50-10%
St. Louis.....	45%	....

MACHINE BOLTS—Warehouse discounts in the following cities:

	New York	Cleveland	Chicago	St. Louis
by 4 in. and smaller.....	30%	50%	35-5%	50-5%
Larger and longer up to 1 in. by 30 in.	20%	40%	25-5%	40-5%

WASHERS—From warehouses at the places named the following amount is deducted from list price:

For wrought-iron washers:
New York.....\$1.50 Cleveland.....\$3.75 Chicago.....\$3.00

For cast-iron washers the base price per 100 lb. is as follows:
New York.....\$7.00 Cleveland.....\$3.75 Chicago.....\$4.25

RIVETS—The following quotations are allowed for fair sized orders from warehouse:

	New York	Cleveland	Chicago
Steel $\frac{7}{8}$ and smaller.....	40%	55% off	50%
Tinned.....	40%	55% off	50%

Boiler, $\frac{1}{2}$, $\frac{3}{4}$, 1 in. diameter by 2 in. to 5 in. sell as follows per 100 lb.:
New York.....\$5.00 base Cleveland.....\$4.00 Chicago.....\$4.87 Pittsburgh.....\$4.72

Structural, same sizes:
New York.....\$5.10 Cleveland.....\$4.10 Chicago.....\$4.97 Pittsburgh.....\$4.82

CONSTRUCTION MATERIALS

LINSEED OIL—These prices are per gallon:

	New York	One	Cleveland	One	Chicago	One
	Current	Year Ago	Current	Year Ago	Current	Year Ago
Raw, 5-bbl. lots.....	\$1.80	\$1.59	\$2.05	\$2.10	\$1.93	\$1.90
5-gal. cans.....	2.00	1.84	2.25	2.25	2.23	2.00

WHITE AND RED LEAD—Base price.

	Red		White	
	Current	1 Year Ago	Current	1 Year Ago
	Dry	In Oil	Dry	In Oil
100-lb. keg.....	14.50	15.50	14.00	14.50
25 and 50-lb. kegs.....	14.75	15.75	14.25	14.75
12-lb. keg.....	15.00	16.00	14.50	15.00
5-lb. cans.....	16.00	17.50	16.50	16.00
1-lb. cans.....	17.00	18.50	17.50	17.00
500 lb. lots less 10% discount. 2000 lb. lots less 10-24% discount.				

COMMON BRICK—The prices per 1000 in cargo or carload lots are as follows:

Chicago.....	\$12.00	Birmingham.....	\$15.00
St. Louis, salmon.....	12.00	Denver (hard red).....	16.00
Cincinnati.....	17.00		

PREPARED ROOFINGS—Standard grade rubbered surface, complete with nails and cement, costs per square as follows in New York, St. Louis, Chicago and San Francisco.

	1-Ply		2-Ply		3-Ply	
	C.I.	L.C.I.	C.I.	L.C.I.	C.I.	L.C.I.
No. 1 grade.....	\$1.50	\$1.75	\$1.90	\$2.15	\$2.30	\$2.55
No. 2 grade.....	1.35	1.60	1.70	1.95	2.05	2.30

Asbestos asphalt saturated felt (14 lb. per square) costs \$5.00 per 100 lb. Slate-surfaced roofing (red and green) in rolls of 108 sq. ft. costs \$2.25 per roll in carload lots and \$2.50 for smaller quantities.

Shingles, red and green slate finish cost \$6.00 per square in carloads, \$6.25 in smaller quantities, in Philadelphia.

ROOFING MATERIAL—Prices per ton f. o. b. New York and Chicago:

	Carload Lots		Less Than Carload Lots	
	N. Y.	Chicago	N. Y.	Chicago
Tar felt (14 lb. per square of 100 sq. ft.).....	\$70.00	\$70.00	\$71.00	\$71.00
Tar pitch (in 400-lb. bbl.).....	21.00	18.00	22.00	19.00
Asphalt pitch (in barrels).....	34.00	34.00	37.50	37.50
Asphalt felt.....	68.00	68.00	72.50	72.50

HOLLOW TILE—Price per block in carload lots for hollow building tile:

	4x12x12	8x12x12	12x12x12
St. Paul.....	\$0.087	\$0.135	\$0.185
St. Louis.....	.10	.184	.31
Seattle.....	.09	.175	.30
Los Angeles.....	.082	.154	.236
New Orleans.....	.165	.22	.325
Pittsburgh.....	.065	.115	....
Chicago.....	.08	.144	....
Denver.....	.125	.18	.25
Cincinnati.....	.08705	.1623	.2416

*F. o. b. factory, 4, 8 and 10 inch.

LUMBER—Price of pine per M in carload lots:

	1-In. Rough	2-In. T. and G.	8 x 8 in. x 20 Ft.
	10 In. x 16 Ft.	10 In. x 16 Ft.	
St. Louis.....	\$49.00	\$45.00	\$41.00
Birmingham.....	40.00	48.00	43.00
Denver.....	43.25	35.00	43.00
Cincinnati.....	55.00	50.00	47.50

EXPLOSIVES—Price per pound of dynamite in small lots and price per 25-lb. keg for black powder:

	Low Freezing	40%	Gelatin	80%	Black Powder
	20%		60%		
New York.....		\$0.27	\$0.29		\$2.20
Boston.....	\$0.22	.24	.26	\$0.31	2.20
Kansas City.....	.18	.22	.25	.29	2.25
New Orleans.....	.23 (50%)	.22	.24		
Seattle.....	.1675	.1925	.2125	.2775	2.10
Chicago.....	.18	.20	.25	.29	2.15
St. Paul.....	.18	.22	.25	.29	2.25
St. Louis.....	.18	.22	.25	.29	1.80
Denver.....	.17	.21	.24	.28	2.25
Los Angeles.....	.25	.30	.35	.27	3.00

MISCELLANEOUS

GREASES—Prices are as follows in the following cities in cents per pound for barrel lots:

	Cincinnati	St. Louis	Birmingham	Denver
Cup.....	7-8	3.6-3.7	8	13
Fiber or sponge.....	7	7.2	9	18
Transmission.....	9-10	13	8	15
Axle.....	5	4	4	5
Gear.....	5	6	8	8
Car journal.....	5	4.7	4	15

BABBITT METAL—Warehouse prices in cents per pound:

	New York	One	Cleveland	One	Chicago	One
	Current	Year Ago	Current	Year Ago	Current	Year Ago
Best grade.....	90.00	95.00	68.50	93.00	60.00	96.00
Commercial.....	50.00	50.00	17.25	23.00	13.00	25.00

HOSE—Following are prices of various classes of hose:

Fire				50-Ft. Lengths
Underwriters' 2½-in.....				75c. per ft.
Common, 2½-in.....				40%
	Air			
	First Grade	Second Grade		Third Grade
¾-in. per ft.....	\$0.50	\$0.33		\$0.22
	Steam—Discounts from list			
First grade..... 30%	Second grade..... 40%	Third grade..... 45%		

LEATHER BELTING—Present discounts from list in cities named:

	Medium Grade	Heavy Grade
St. Louis.....	40%	35%
Denver.....	35-5%	30%
Birmingham.....	35%	30%
Chicago.....	45%	40%
Cincinnati.....	30-5-24%	40-24%

RAWHIDE LACING—20% for cut; 45c. per sq. ft. for ordinary.

PACKING—Prices per pound:

Rubber and duck for low-pressure steam.....	\$1.00
Asbestos for high-pressure steam.....	1.70
Duck and rubber for piston packing.....	1.00
Flax, regular.....	1.20
Flax, waterproofed.....	1.70
Compressed asbestos sheet.....	.90
Wire insertion asbestos sheet.....	1.50
Rubber sheet.....	.50
Rubber sheet, wire insertion.....	.70
Rubber sheet, duck insertion.....	.50
Rubber sheet, cloth insertion.....	.30
Asbestos packing, twisted or braided, and graphited, for valve stems and stuffing boxes.....	1.30
Asbestos wick, 4- and 1-lb. balls.....	.85

MANILA ROPE—For rope smaller than 4-in. the price is $\frac{1}{2}$ to 2c. extra; while for quantities amounting to less than 600 ft. there is an extra charge of 1c. The number of feet per pound for the various sizes is as follows: 4-in., 8 ft.; 4-in., 6; 4-in., 4; 1 in., 3; 1 1/2 in., 2 ft. 10 in.; 1 1/2 in., 2 ft. 4 in. Following is price per pound for 4-in. and larger, in 1200-ft. coils:

Boston.....	\$0.27	Atlanta.....	\$0.29
New York.....	.26	Denver.....	.27
St. Louis.....	.26	Kansas City.....	.26
Chicago.....	.26	New Orleans.....	.25
St. Paul.....	.26	Seattle.....	.25
San Francisco.....	.24	Los Angeles.....	.28

PIPE AND BOILER COVERING—Below are discounts and part of standard lists:

PIPE COVERING		BLOCKS AND SHEETS	
Pipe Size	Standard List Per Lin. Ft.	Thickness	Price per Sq. Ft.
1-in.	\$0.27	1-in.	\$0.27
2-in.	.36	1 1/2-in.	.40
3-in.	.45	2-in.	.45
4-in.	.60	2 1/2-in.	.60
6-in.	.80	3-in.	.75
8-in.	1.10	3 1/2-in.	.90
10-in.	1.30	4-in.	1.05
85% magnesia high pressure.....			
For low-pressure heating and return lines.....			
		4-ply.....	58% off
		3-ply.....	60% off
		2-ply.....	62% off

WIRING SUPPLIES—New York prices for tape and solder are as follows:

Friction tape, 4-lb. rolls.....	48c. per lb.
Rubber tape, 4-lb. rolls.....	60c. per lb.
Wire solder, 50-lb. spools.....	46c. per lb.
Soldering paste, 2-oz. cans.....	\$1.20 per doz.

COPPER WIRE—Prices per 1000 ft. for rubber-covered wire in following cities:

	Denver		Birmingham	
	Single Braid	Double Braid	Single Braid	Double Braid
14.....	\$14.50	\$17.50	\$12.50 Solid	
10.....	23.25	29.25	25.10	
8.....	31.05	38.30	34.75	
6.....	50.60	52.65	57.50	
4.....	73.00	75.32	81.65	
2.....	110.00	112.45	140.20	Stranded
1.....	143.90	146.15	190.90	
0.....	181.25	181.25	231.33	
00.....			281.83	
000.....			343.22	
0000.....			416.80	

Pittsburg—23c. base; discount 50%; St. Louis—30c. base.

FREIGHT RATES—On finished steel products in the Pittsburgh district including plates, structural shapes, merchant steel, bars, pipe fittings, plain and galvanized wire nails, rivets, spikes, bolts, flat sheets (except planished), chains, etc. the following freight rates per 1000 lb. are effective:

Boston.....	\$0.30	New Orleans.....	\$0.38
Buffalo.....	.17	New York.....	.27
Chicago.....	.27	Philadelphia.....	.24
Cincinnati.....	.23	St. Louis.....	.24
Cleveland.....	.17	St. Paul.....	.49
Denver.....	.99	Pacific Coast (all rail).....	1.25*
Kansas City.....	.59		

Note—Add 3% transportation tax. Minimum carload, 80,000 lb.



DISCUSSION *by* READERS

EDITED BY JAMES T. BEARD

Electric Mine Haulage

Letter No. 1—Having had some experience of a similar nature, in respect to the action of electric mine locomotives, I was much interested in reading of the trouble experienced by Charles F. Sherman, as described in his inquiry, *Coal Age*, Nov. 27, p. 861. In that connection, kindly permit me to submit the following:

Mr. Sherman describes his difficulty by saying that the locomotive has a tendency to lift at the front end when hauling a loaded mine trip, causing the front wheels to spin and throwing the greater portion of the load on the rear motor, which becomes overheated. Unfortunately, he has omitted to state in what manner the motors are slung or suspended in the frame of the locomotive.

On small locomotives having a short wheelbase, the motors are usually slung outside of the wheels, the suspension bars being then attached to the two ends of the locomotive frame. When this is the case, it would seem that the action of both motors would be to lift the front end of the machine. I have tried to illustrate this in the accompanying sketch in which

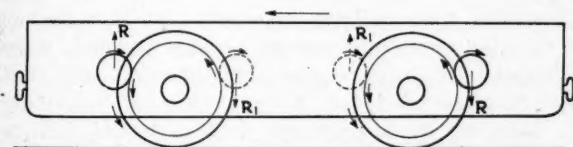


DIAGRAM OF ELECTRIC MINE LOCOMOTIVE

it appears that the locomotive is moving to the left and the head motor tends to climb on the gear fixed to the front axle. The motor thus exerts a lifting force R on the front end of the frame. At the same time, the rear motor, acting downward on the gear attached to the rear axle, exerts a downward pull R on the tail end of the frame, which also acts to lift the front end of the machine.

If my reasoning is correct it is clear that the combined action of the two motors when hung in the manner in which I have described, is to lift the front end of the locomotive frame and press down the rear end. That being the case, my opinion is that it would do no good to change the position of the drawbar, which should be at about the height of the locomotive axle above the rails to obtain the best results, assuming this is about the elevation of the drawbars of the mine cars.

My understanding is that the best practice in mine-locomotive building is to suspend the motors on the inside of the two locomotive axles, so that these conditions will be reversed. As shown in the figure by the dotted lines and arrows, the head motor then tends to work downward on the gear attached to the front axle and exerts a downward force R , on the locomotive frame, which acts within the wheelbase and exerts

no tendency to tilt the locomotive either way. On the other hand, the rear motor tends to climb the gear attached to the rear axle and exerts a lifting force R , on the locomotive frame, which is counteracted to better advantage, however, by the relatively greater leverage of the weight of the machine, acting through its center of gravity. In this position of the motors, their action is practically neutralized as far as the lifting or tilting of the locomotive is concerned.

TROUBLE DUE TO IMPERFECT CONNECTIONS

Allow me to call attention here to another trouble that is frequently experienced in the operation of an electric mine locomotive. In one instance in my own practice, observing that there was a tendency of the front wheels of the locomotive to spin, I made a careful examination, which disclosed the fact that the head motor was running on two fields only, instead of four. This caused the armature to revolve more rapidly than that of the other motor. As in Mr. Sherman's case, the effect was to throw the major portion of the work on the rear motor, especially when starting the trip. It was found that the two dead fields were grounded between the second and third fields, which were operating in series and short-circuited.

Taking everything into consideration, let me suggest to Mr. Sherman the making of a thorough examination of all the electrical connections, fields and armatures of each motor, to see that they are operating properly. If no trouble is found there, an effort should then be made to alter the suspension of the motors in the locomotive frame, if this is at all practicable. If not, I know of no better way of overcoming the difficulty he has mentioned than to weight the front end of the machine so as to prevent its lifting. With many others, I shall be glad to learn of the experience of motormen who have had similar troubles.

ELECTRICIAN.

Johnstown, Penn.

Roller Bearings for Mine Cars

Letter No. 4—Since reading the several letters published in *Coal Age* and dealing with the subject of roller-bearing equipment, I have had some very interesting and profitable discussions, on this subject, with numerous friends who are connected both with the steel industry and coal companies in an engineering capacity. From them I have learned many facts and obtained much interesting information on the use of antifriction bearings, which may be said to be yet in their infancy.

In speaking thus, I do not mean that the present application of roller bearings is experimental; but rather, the field is so large that the possibilities of their use have hardly been realized. The fact is that it will take time to so perfect this type of bearing that its adoption will be universal. As with the aeroplane

and other problems, development is slow; but the day will surely come when antifriction bearings will be universally employed.

At the present time, the so-called "flexible, roller bearing" is used to a large extent around steel mills. The ingot cars of the Bethlehem Steel Co. are equipped with these bearings in its plants at South Bethlehem, Lebanon, and Sparrows Point. They are also used under charging cars, at the Youngstown plant of the Carnegie Steel Co., and under the ingot cars of the Illinois Steel Co., at Joliet, Ill. The same type of bearing is found on rolling-mill tables, caster beds, hot saws and in a very large number of machines in the shops. Indeed, when one takes the trouble to investigate the extent of their use, it is surprising to find the number of applications of roller bearings.

ROLLER BEARINGS AT MINES AND CAUSES OF THEIR SEEMING FAILURE TO SAVE POWER

Around the mines, roller bearings are used on storage-battery locomotives, and thousands of mine cars so equipped are giving satisfactory service. Regarding the division of opinion as to the merits of the wheel-hub and journal-box application, it seems to be the policy of the operators in the anthracite field to favor the journal box for use under their larger and heavier cars, while bituminous mine owners seem to prefer the wheel-hub installation. My observation shows, however, that the journal-box equipment is now invading the soft coal fields; and there is little doubt in my mind but that this discussion will interest large numbers of operators in all soft-coal regions.

While it is true that the saving in power claimed for roller-bearing equipment has not been realized in every instance, the failure seems to be due largely either to an improper installation of the bearing, or the use of a wrong kind of lubricant.

Since leaving the employ of a company that was one of the large soft-coal producers, I have learned that they have now invested heavily in the spiral type of roller-bearing equipment, after making an extended investigation of the matter. During my service with that concern, I was always impressed with their conservative methods and lack of experimentation.

Another large coal and coke operation, having a national reputation, purchased a small number of roller-bearing cars, in 1913, and as a result of the satisfactory service of this equipment they have now in use more than a thousand cars so equipped. The coal department of the largest steel corporation in this country has now in operation over 3000 cars equipped with the spiral-roller bearing.

When one reflects that the price of the roller-bearing car equipment is greater than that of plain-bearing cars, it is only logical to conclude that these companies have found the equipment a profitable investment, and that roller bearings for mine cars have come to stay, which is evidenced also by the growth of the industry.

Pittsburgh, Penn.

LEWIS S. YOUNG.

Letter No. 5.—Referring to the letter of J. F. Fox, *Coal Age*, Nov. 13, p. 805, regarding the relative merits of roller bearings and plain bearings for use on mine cars, permit me to say that there has been so much written advocating the use and explaining the advantages of roller-bearing equipment that it is quite refreshing to learn that the plain bearing has a few advantages after all.

Assuming, as I do, that a large majority of the coal mines still have their mine cars equipped with plain bearings, it is strange that the alleged efficiency of roller-bearing equipment and their dependability to save power, lubricants, and repair costs, have not had the effect to convince the large majority of mine owners, who have yet failed to adopt the improved equipment.

To my mind, the greatest disadvantage of this improved type of bearing lies in the bearing itself. While the simpler types of roller bearings may be durable enough, their mechanism is intricate and costly; and since it is not claimed that they are indestructible when derailments, wrecks and smashups occur in the mine, the cost of replacing such equipment may prove one of the chief objections to its adoption. However, aside from the excessive cost of renewals, the cost of repairing such bearings is an important consideration.

From the fact that there has never been a means yet discovered for preventing wrecks and smashups in mines, it follows that the simple plain bearing, being strong, durable and generally unbreakable, will cost less to maintain. The plain bearing is more quickly repaired by the average mine blacksmith and car repairman than the most simple type of roller bearing. My opinion is that there is no guarantee of greater length of service of a roller bearing that would warrant the extra outlay and cost of maintenance, under the severe service to which mine cars are subject.

PRACTICAL CONSIDERATIONS MUST BE TAKEN INTO ACCOUNT IN CHOOSING A BEARING

Much has been claimed in the way of reduced lubricating cost for the improved type of bearing. Speaking honestly, I am willing to admit that if roller bearings on mine cars could not be broken, twisted, warped or strained in wrecks and derailments, and if the grease recommended for their lubrication would never gum, cake, or become gritty with dirt and dust, one could scarcely imagine a smoother, more economical or more efficient running gear for mine cars than is offered by that type of bearing. However, in mines with heavy grades where the need of saving power is greatest, there is always the possibility of wrecks and smashups that must greatly increase the cost of repairs and renewals if roller bearings are in use.

Allowing, for the sake of argument, that the greasing of roller bearings shows a saving over the oiling of plain bearings, it is hard to understand the claim of one writer that this saving amounts to 250 days in the year. Even assuming the truth of the slogan of advertisers that greasing is necessary only "once every six months," there could not result the saving in wages paid an oiler for 250 days, as the time devoted to cleaning these bearings and greasing them properly would make an item of cost that would offset much of this saving. It is probable that the cost of greasing roller-bearing equipment is considerably more than we are led to believe by these alleged claims.

Of course, I realize that a great many dollars may be saved in the greasing of roller bearings on mine cars, even if it is necessary to grease such bearings once every three months, or, say, every two months. But let me ask if the profit and loss account on the credit side of the ledger will show a net saving when the extra cost of renewals and repairs of these bearings is considered, bearing in mind the severe service

to which the cars are subjected and the relatively greater durability of plain bearings.

Taking all things into consideration, there is every possibility of spending more money than we save, unless there are really ideal perfect conditions regarding haulage in the mine that would insure against derailment and wreckage of cars. I believe that the saving in power claimed would have to equal 50 per cent., in order to offset the increased cost of maintenance and show a net profit due to the adoption of such improved equipment.

While the saving in power by the use of roller bearings may not have been fully considered in my practice, I have often wondered if the claim of 40 or 50 per cent. of power saving has been scientifically demonstrated; and, if so, why this type of bearing is not more generally adopted by coal-mine operators; and, more particularly, by the railroads of the country, whose engineers have made a study of all feasible ideas for facilitating transportation and saving power. It goes without saying that power is a dominant factor in all classes of transportation.

If roller-bearing equipment for cars offers an actual saving of 50 per cent. or even 40, 30 or 20 per cent., it would mean that an engine able to pull 100 railroad cars on a level grade, would haul 150, 140, 130 or 120 of such cars equipped with roller bearings. Indeed, it would be difficult to imagine a system of transportation where such a tremendous saving of power would be more justified than in the great system of railroads in the United States.

W. H. NOONE.

Thomas, W. Va.

Lawful Examination of a Mine

Letter No. 9—The discussion of this subject in *Coal Age* has been of the greatest interest, chiefly because it brings out the best ideas and experiences of men who have been in positions that enable them to give the matter thoughtful attention.

To say the least, the question of what is a "lawful examination" of a mine is complicated by reason of the widely varying conditions in the mine and the difference in the requirements of state mining laws. Everyone that is directly connected with a coal mine should be, and no doubt is, greatly interested and desirous of knowing what a proper and lawful examination of a mine requires.

The careful reading of the previous letters in this discussion leads one to believe that there is great necessity for a better system of mine examination, and the adoption of a standard rule or law covering certain general requirements in coal mines. Where there is not constant vigilance and watchcare to avoid the disasters that are occurring all too frequently, coal mining is certainly a dangerous occupation. It must be remembered that gas may accumulate in mines that, up to that time, have been considered free from gas.

It is the "model mine" that has often been the scene of death and destruction, because of a too great confidence in its supposed freedom from dangerous accumulations of gas or dust. On the event of these disasters, experts examine the mine to ascertain the cause; but frequently the actual though unrecognized cause is a lack of mine discipline or an assumed freedom from danger in the mine.

I mention this in order to remind men of experience who make these examinations and are well versed in

the theoretical knowledge of gases, though their practical experience may be somewhat limited, that their opinions and conclusions should be carefully worked out on a common sense basis and expressed candidly without fear.

Experience teaches that there are many mines where notices of warning, danger signs and "safety first" placards are everywhere in evidence. Many of these mines are known as "free from gas" and considered safe. But, too late, we are reminded of the stubborn truth, by the ever-recurring disaster caused by the explosion of gas or dust, demanding a terrible toll of life.

DANGER ALWAYS PRESENT IN MINES AND CONSTANT SUPERVISION IS REQUIRED

The fact is, there is plenty of danger in all mines and the sooner we recognize this truth, the more rapid will be our progress in reducing accidents. Where so large a proportion of our mine workers are unable to read or understand the notices that are posted to insure their safety, more constant supervision and careful instruction is the great safeguard and remedy that is needed to make the mines safe today.

Speaking of what constitutes a lawful examination, let me say that to comply with the law when examining a mine is a very difficult matter, except in small mines. Each year mines are becoming larger, the workings extended, and the working places more scattered. In the view of many superintendents and mine managers (foremen) the examination of the mine is a mere form that is necessary in order to comply with the law, and they know that a strict compliance would require more examiners than are commonly employed.

This is certainly a grave mistake and a source of danger, as the men responsible for the safe operation of a mine must hurry through their work and slight many places where danger lurks. It may be economy in the view of the coal company operating the mine; but it is radically wrong in principle to start economizing by employing so small a number of mine examiners that the work must be slighted by them.

TIME OF MAKING THE EXAMINATION

In some states, the law requires that the mine shall be examined not more than three hours before the men enter for work. In many cases, it is even then a hurry job. In my own State of Illinois, the law allows eight hours as the time during which the examination must be made and, in that time, the examiner must visit all working places, airways, haulage roads, manways and especially old gobs and abandoned workings. He must also measure the air at the last open crosscut in each pair of entries, or in the last room of each air split or section.

Many of the mines provide a large inspection bulletin that the examiner must fill out by indicating each place as "safe" or "not safe." Taking all into consideration, I have no hesitation in saying that one of the greatest dangers in our mines is the lack of their proper examination, which is largely due to the law controlling that work and the fact that man is only human.

Too often, the examiner is taxed to overexertion, by having in charge too large a territory. It is common to hear men of sound judgment and common sense remark that no examiner can fully comply with the requirements of the law in making the examination of our large mines. In attempting to do so, the examiner would lose his place.

In mines where a nightshift is employed, doors are often set open and no proper air measurements can then be taken, which is another reason why the examination should be made when no one but the examiners is in the mine. Of course, this would require more examiners and increase the expense of the work; but to the man of experience it is the only safe method to adopt and will always be found more profitable in the end.

As one whose living is earned by work in the mine, let me say I believe it is the earnest hope of all mine workers that safer and more sanitary conditions will soon be established and maintained in the operation of coal mines. I hope to see the day when nothing will be taken for granted, and a true picture of the actual conditions of our mines be recorded without fear or favor. To this end, the discussion in *Coal Age* must prove a great help. Let it continue.

Staunton, Ill.

W. M. CHAMBERS.

Origin of Coal

Letter No. 2.—The letter of Richard Bowen, *Coal Age*, Sept. 11, p. 460, referring to the theories of the origin of coal should be interesting to all students of mining, as no one can follow the occupation of mining coal without at least an elementary knowledge of its formation.

When faults or "pinchouts" are met in mines, those who have studied the subject will have an intelligent idea of what has happened in the past to produce that condition, and will know better how to proceed to find the coal on the other side of the fault, or whether the pinching out of the seam is the limit of the basin.

Many who are just beginning their study of the geology of coal will find it difficult to believe that seams of coal, as we find them today, are the remains of great impenetrable forests of former ages. However, as one continues to study, these difficulties vanish. The "*in situ*" and the "drift" theories are both generally explained in a coal-mining course of study. These theories give the student a datum line from which his conclusions are drawn.

MANY PRACTICAL DIFFICULTIES PRESENTED IN ADOPTING THE DRIFT THEORY

The drift theory of coal formation teaches that the coal deposits are the remains of vegetable matter, trees, shrubs and other growth that have drifted from the places where they grew and been deposited in large quantities in the basin where the coal beds were formed.

While it is comparatively easy to understand that our coal was formed from wood and other vegetable matter, there is difficulty in accepting, for general application, the theory that these trees and vegetable matter were drifted, from their original location, in such great abundance as to form the coal beds that we now find covering extended areas.

Other mineral deposits, such as salt, iron ore, copper, silver, gold and other metals were undoubtedly deposited in beds, fissures and veins from the waters that carried them in solution. But, in the case of trees and other vegetable matter, the material was not carried in solution, but theory assumes that this great bulk of coal-forming material was drifted to where it has been deposited and has later formed the coal seams as they exist today.

On the other hand, the *in situ* theory of coal formation is more acceptable and much more easily explained than the drift theory, as it assumes the successive growth and accumulation, from year to year, of the trees and vegetable matter in one place, thereby forming the great beds and seams that cover extended areas and which represent to the practical mind great forest regions.

It is not assumed that the coal deposits are the remains of a forest growth of 50 or even 100 years; but that the accumulation continued for ages in the area represented by the coal seams of today. Many of the trees grew to immense size; some had fallen, while others remained standing when the area was overflowed owing to changes in the elevation of the surface, as we are taught in geology. This explains why the trunks of trees are sometimes found in a horizontal and others in an upright position in a coal seam.

Again, the floor of our coal seams, which is generally clay or sandrock is suggestive of the nature of the soil on which the forest grew. It would seem that, to accept the drift theory, would be to expect a greater variety in the strata underlying coal seams, including even igneous rocks, which are never a part of the coal formations, whose sedimentary character tell of a different origin.

MANY OBSERVED GEOLOGICAL FACTS SUGGEST THE TRUTH OF THE IN SITU THEORY

In adopting the *in situ* theory of coal formation, it is not necessary to assume that the entire area was one great swamp. But, geology teaches that in those early ages the earth's surface was continually undergoing changes, portions being depressed and others elevated, so that there were successive inundations of large areas, which gave rise to the interstratification of clay seams, shales, limestones and sandrock with thin and thick beds of coal, these foreign materials being deposited from the overflowing waters.

Similar conditions of geological changes are in evidence today, in the millions of tons of sediment carried down the Mississippi River each year, and the great silt deposits in the regions of the Nile and Ganges rivers. In the present age of the earth, however, such changes are not taking place as rapidly as was formerly the case.

During the Carboniferous Period it is easy to believe that large portions of the earth were comparatively level, affording favorable conditions for the growth of extensive forests. Again, there were periods of violent disturbance that formed the mountain ranges and tilted and contorted many of the coal seams and, at times, produced the heat and pressure that changed much of the coal into anthracite. These disturbances broke up and separated many coal areas that were, perhaps, originally continuous but are now divided by mountain ranges.

The same disturbances gave rise to the steep pitches and inclinations in many coal regions; and coal seams are found outcropping high up on the mountain side. At the same time, much of the formations have been eroded by rivers and surface drainage, or worn away by glacial action and atmospheric agencies. The study of these agencies and their effects in the formation of coal is of deep interest and importance to the mining industry, especially to the men employed underground.

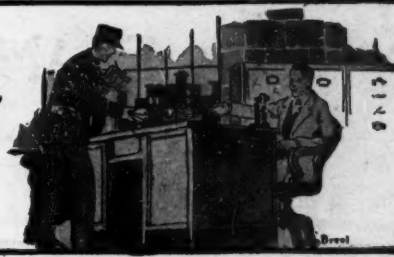
—, Ala.

ROBERT MCCUNE.



INQUIRIES OF GENERAL INTEREST

ANSWERED BY JAMES T. BEARD



Strength of Leather Belting

Kindly state what may be considered a safe working tension of a good leather belt, say 20 in. wide.

Pittsburgh, Penn.

MINE MECHANIC.

Much will depend on the manner of lacing the two ends to form one continuous belt. Assuming, however, that the strength of the lacing is equal to that of the leather, the safe working stress of a good, well tanned oxhide belt $\frac{3}{16}$ in. thick can be taken as 55 lb. per inch of width. Such a belt 20 in. wide would be expected to carry a load of $20 \times 55 = 1100$ lb. The hair side of the belt should be run next to the pulley.

Electric Conductors and Coal Dust

The question was asked me a short time ago in regard to what effect, if any, the high-potential wires that conduct power to the working faces in our mine had on the mine air. This mine generates a considerable quantity of gas, though not enough to require the use of safety lamps, owing to the large quantity of air maintained in circulation.

Although I have read certain references, at different times, regarding the effect of electrical conductors on the mine air, I was unable to give a satisfactory answer to the question asked. It will be of interest to learn if there is any ground for apprehending danger when high potential wires are carried into a mine generating gas.

FIREBOSS.

Pottsville, Penn.

Many ignitions of firedamp, which have taken place in coal mines and been followed by disastrous effects, have been traced to the use of electricity. Probably, the majority of these occurrences, however, have been the result of inadequate equipment. Either the installation has been made in a careless manner or by an incompetent person, or the sparking of the wires, blowing out of fuses, or some similar occurrence has resulted in the ignition of accumulated gas.

This, however, is not the only danger due to the presence of high-potential conductors when carried into mines generating gas and dust. As a result of experiment, it is claimed that when a cloud of coal dust, held in suspension in the air current of a mine, is projected against an electrical conductor of high potential there takes place a discharge of electricity yielding sparks several centimeters in length, depending on the potential of the current.

We are unable to say that these results have been confirmed in a manner to make them reliable. If this was the case, there would always exist the danger that a sudden fall of roof, which is liable to occur at any time, might raise a cloud of dust that would cause disaster in the presence of gas and such high-potential

conductor. It is safe to say that when the mine air is charged with gas and dust, these constitute a grave danger, even in the absence of electrical conductors. There is little question, also, but that any form of live wire in such an atmosphere is an element of danger and should be avoided as not being permissible, in the best mining practice.

Normal Life of Mine-Car Axles

Much has been said, in past issues of *Coal Age*, regarding heat-treated axles for mine cars. The references, I believe, seem to indicate that the heat treatment greatly prolonged the life of the axles. Only recently, I read a highly interesting and instructive article on this treatment as applied to the axles of electric locomotives and cars on surface roads.

The article stated that the treatment was introduced for the purpose of making the axles stand an increased load without increasing the dimensions of the axles and produced satisfactory results in this respect. What is true in regard to the increasingly heavy tonnage on surface roads is likewise true in mine haulage, where the rapidly increasing demand for larger output requires the use of mine cars of greater capacity.

In connection with the suggested needed standardization of mine equipment, let me ask if it would not be of great interest to learn something regarding the average life of mine-car axles, used under different conditions. The description should state the style of bearing, kind of haulage, load on the axles, miles of haul and other details affecting the life of the axle, such as lubrication of the wheels, condition of track, etc.

It would seem that many of the mining engineers of our large coal companies should be able to give some interesting figures along this line and that this would give rise to a practical discussion of the subject that must prove valuable in reducing the cost of mine haulage.

MECHANIC.

Pittsburgh, Penn.

Coal Age is pleased to receive the suggestion of this correspondent for submission to readers, hoping that it will have the careful attention it deserves. Undoubtedly, as mentioned by the correspondent, the normal life of mine-car axles will vary widely with the conditions under which they are used. At times, there will be failures from defects in material, but the endeavor should be made to eliminate such cases, as far as practicable.

It has been suggested, that the heat treatment of steel does not improve its nature with respect to resistance to bending, but hardens the surface and enables the metal to resist wear. Results in regard to this point will be welcomed and we hope for a good discussion by mechanics and engineers.



EXAMINATION QUESTIONS

ANSWERED BY
JAMES T. BEARD



Mine Manager's Examination Springfield, Ill., Nov. 11, 12, 1919

(Selected Questions)

Ques.—Explain the conditions under which coal dust in a mine becomes dangerous as a source of explosion.

Ans.—The finely divided dust of a highly inflammable coal is always a menace to the safety of a mine, and particularly so when it is allowed to accumulate in such quantity as to be raised and held in suspension in the mine air. The danger is greater where the air contains even a small percentage of methane or where the coal is blasted, particularly if black powder is used or the coal blasted off the solid. Even if the coal is not highly inflammable, fine accumulated dust is dangerous under the conditions named. In order to reduce the liability to explosion in a mine generating gas and dust, or dust alone, in considerable quantity, the mine should be thoroughly examined for gas and no accumulations of gas or dust should be permitted at the working faces or on the roads and travelingways in the mine. All roads and travelingways should be thoroughly cleaned at regular intervals so as to prevent undue quantities of dust accumulating therein.

Ques.—How will a current of 100,000 cu.ft. of air per min., passing in the main air-course of a mine, divide between the following three splits: Split A, 6 x 6 ft., 2,000 ft. long; Split B, 6 x 6 ft., 4,000 ft. long; Split C, 6 x 6 ft., 6,000 ft. long. Find the quantity of air that will pass in each split, supposing the pressure on all the splits to be the same.

Ans.—These splits having the same cross-section and under the same unit pressure, the quantity of air passing in each will be in proportion to the square root of the length of the airway. Since the relative lengths of the splits are 2, 4, 6, the calculation is as follows:

$$\begin{array}{lcl}
 A, \sqrt{2} = 1.414; & \frac{1.414}{5.764} \times 100,000 = & 24,110 \text{ cubic feet} \\
 B, \sqrt{4} = 2.000; & \frac{2.000}{5.764} \times 100,000 = & 34,110 \text{ cubic feet} \\
 C, \sqrt{6} = 2.450; & \frac{2.450}{5.764} \times 100,000 = & 41,780 \text{ cubic feet} \\
 & \hline
 & \text{Total} & 100,000 \text{ cubic feet}
 \end{array}$$

Ques.—What is meant by the term, "effective pressure" on an engine piston?

Ans.—In the cylinder of a steam engine, the steam is worked expansively, the valves shutting off the steam at a fraction of the stroke. Up to that point, the pressure on the piston is the full steam pressure; but during the remainder of the stroke the pressure decreases, the steam expanding to fill the increasing space behind the piston. Bearing these facts in mind, it is clear that the mean effective pressure is calculated on the assumption that the pressure on the piston is constant through-

out the entire stroke, and the work performed is the same as when the steam is used expansively.

Ques.—An engine has a 5-ft. stroke and makes 30 r.p.m.; what is its piston speed in feet per minute?

Ans.—An engine makes two strokes during each revolution. At a speed of 30 r.p.m., the number of strokes per minute is $2 \times 30 = 60$. For a 5-ft. stroke, at this rate, the piston speed is $5 \times 60 = 300$ ft. per min.

Ques.—Supposing an entry 90 yd. long to be filled with marsh gas (CH_4) and air at the most explosive point. Also, suppose that the gas and air can be separated, what length of entry would each occupy?

Ans.—A mixture of marsh gas and air, at its most explosive point, contains 9.46 per cent. of gas. That is to say, in 100 vol. of the mixture, there are 9.46 vol. of gas and $100 - 9.46 = 90.54$ vol. of air. Then, assuming the sectional area of the airway is constant throughout its length, the proportion of the length of entry each gas would occupy would be the same as their relative volumes. For example, in an entry 1,000 ft. long, the marsh gas would occupy a length of $0.0946 \times 1,000 = 94.6$ ft.; and the air would occupy a length of $1,000 \times 0.9054 = 905.4$ ft.

Ques.—A ventilating fan is 25 ft. in diameter and the port of entry is 10 ft. in diameter; what is the radial length of the blades?

Ans.—Assuming the lip or inner portion of each blade corresponds to the circumference of the port of entry of the fan, the radial length of the blades in this fan is $\frac{1}{2}(25 - 10) = 7.5$ ft.

Ques.—If it is necessary to double the amount of air passing in a mine, how much should the pressure and power be increased, respectively?

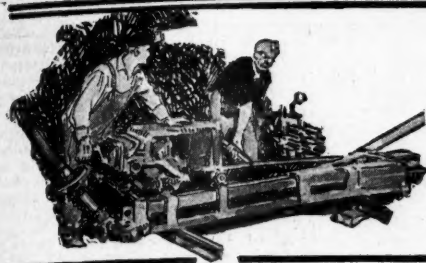
Ans.—For the same mine or airway, the pressure varies as the square of the quantity of air in circulation. In order to double the quantity of air circulating in a mine or airway, therefore, the pressure must be increased to $2^2 = 4$ times the original pressure.

For the same mine or airway, the power producing circulation or the power on the air varies as the cube of the quantity of air in circulation. Therefore, to double the quantity of air passing in a mine or airway will require $2^3 = 8$ times the original power.

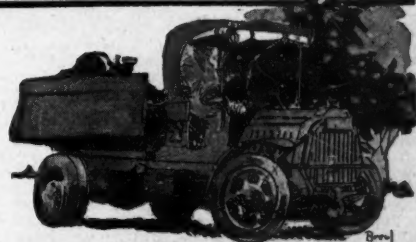
Ques.—The water gage is 1 in. and the volume of air in circulation, 50,000 cu.ft. per min., in a certain mine; what will be the volume of air if the water gage is increased to 1.6 in., owing to an increase of power?

Ans.—Assuming the conditions in the mine remain unchanged, the quantity of air increases as the square root of the pressure or water gage producing the circulation. In other words, the quantity ratio is equal to the square root of the pressure or water-gage ratio, and we write, in this case, calling the required volume of air x ,

$$\begin{aligned}
 \frac{x}{50,000} &= \sqrt{\frac{1.6}{1}} = \sqrt{1.6} = 1.265 \\
 x &= 50,000 \times 1.265 = 63,250 \text{ cu.ft. per min.}
 \end{aligned}$$



COAL AND COKE NEWS



Hazleton, Pa.

Lease controversy closes three mines of the G. B. Markle Co. in the Lehigh anthracite field. Millions involved. 'Union Improvement Co., of Philadelphia, the land owners. Coal output reduced 3500 tons a day and 2000 men thrown out of work. Statements by both interests. Appraisers named to ascertain the value of the Markle improvements.

For the first time in more than twenty-five years, collieries of the G. B. Markle Co. are idle through causes other than strikes, holidays or breakdowns, says the Public Ledger, of Philadelphia. Leases with the Union Improvement Co., of Philadelphia, on the mining rights, involving the Highland No. 5, Jeddo No. 4 and Ebervale properties expired Dec. 31 and no agreement has been reached for their renewal. The dispute hinges on the amount of royalty to be paid on output. Two thousand men are idle and output is reduced 3500 tons a day.

The Markle company has operated the mines at Jeddo for 60 years and has millions of dollars invested in the plants, which comprise three of the six it controls. The mining rights of the other three are held outright by the Markle concern. The Markle collieries are said to have been worked more steadily than any in the Lehigh field and during the last 12 months sent 1,600,000 tons to market, 100,000 better than for any other similar period.

According to A. B. Jessup, vice president and general manager, the company has gone the limit on its offer of royalty, which is said to be close to forty cents a ton. It is claimed that this is above the average paid in the anthracite region.

The company in notices posted at the suspended mines announces it has put forth every effort to have the leases extended to the exhaustion of the coal, and that it has also offered to act as the agent of the Union Improvement Co. to mine the fuel, so that the employees can continue at work. The notices further say:

"These offers have been flatly refused by the Union Improvement Co., and G. B. Markle Co. cannot lawfully continue mining after Dec. 31, 1919."

J. E. Altmiller, of Hazleton, agent of the Union Improvement Co., denied the latter is responsible for the suspension. He said directors of the Union Improvement Co., whose headquarters are in the Lafayette Building, Philadelphia, would have accepted any fair offer. He announced that if negotiations with the Markle company eventually should fail the property would be operated by some one else, and that some lively bidding would be expected.

Before the property can pass into other hands certain conditions of the lease, involving millions of dollars, must be complied with. In that event a board of appraisers must set a value on the improvements underground and above the surface, placed there by the Markle company, which must be reimbursed. Officials of the company say they are unable to give any definite estimate as to these holdings, which represent an investment of millions. The breakers, engine and power houses, rail lines, locomotives and other equipment belong to the Markles, and the only equity not under their control is the right to take out the coal.

Appraisers have already been named to go over the value of the property. Frank Hemelright, of Scranton, one of the executives of the Temple Coal Co., was named by the Markle interests; R. V. Norris, of Wilkes-Barre, expert mining engineer, by the Union Improvement Co., and the two have selected W. W. Inglis, vice president of the Delaware, Lackawanna & Western R.R., Coal Department, as the third.

During the last six months the Markle company is said to have had a valuation made by experts of the Dodson Coal Co. whose report is about ready for submission.

One of the peculiar phases of the situation is that the G. B. Markle Co. controls a tunnel about four miles long that pene-

trates the mountain, to the Butler Valley, and drains the water from the Markle mines. This tunnel, costing more than \$1,000,000, goes away with the use of pumps and is owned by the Jeddo Tunnel Co. Were it to be closed the workings would be flooded within a few days. The tunnel is one of the big engineering feats in the anthracite field.

Among counsel representing the Markle interests in the negotiations are George Wharton Pepper, of Philadelphia; ex-Judge F. W. Wheaton, of Wilkes-Barre; Judge John P. Kelly, of Scranton, and Sanford Robinson, of New York.

Samuel J. Livingston, secretary of the Union Improvement Co., said that the collieries were shut down and he would probably issue a statement as to the claims of his company soon.

Charleston, W. Va.

The year 1919 ends well but cars scarce during first three days of 1920. Producers try to make up for previous losses. Embargo on eastern shipments lifted. Operators hope for good export business. Kanawha region hard hit by poor transportation. No prospect of early improvement. Acute car shortage in New River field. Operators incensed at commandeering of 60,000 tons of coal for railroad use.

While there was a decided upward trend to production in this part of the state supplied by the Chesapeake & Ohio R.R., such increases were due to loading during the first three days of the week ended Jan. 3, since during the last three days of the week there was a decided drop in the number of empties available. During the first half of the week, there was on an average about an 80 per cent supply. That was sustained until Thursday when there were not more than half enough cars for loading and the same was true as to Saturday.

While the year ended rather auspiciously, the same cannot be said of the beginning of 1920. There was, generally speaking, however, a quicker return to work on the part of miners than is usually the case. Not only were the usual number of miners on hand by the twenty-ninth but quite a large percentage worked throughout New Year's day, the railroads being somewhat unprepared for such a contingency, and, therefore, not having enough cars on hand. Motive power, generally speaking, has been such as to make it impossible to handle equipment as expeditiously as might be desired, and cold weather has also been a factor in handling coal loads and empties.

Producers were trying to recoup previous losses sustained during the strike and during the holidays especially in getting coal to contract customers, with whose orders they had fallen so far behind. Inasmuch as most companies are greatly in need of funds, it was also necessary to ship as large a tonnage as possible before the first of the month, in order to depend upon the usual sources of revenue, from which the operators had been cut off for so long a period.

There was of course in addition to the contract market, a steady demand for spot coal. It was toward export markets, however, that producers were looking, and, while unable to ship as much coal to tide for export following the lifting of the ban on such shipments as they would have liked to do, owing to the large amount of coal already on hand there, nevertheless it was a source of satisfaction to know that export shipments might be resumed on their former scale in the near future. The C. & O. was also moving more coal eastward than had been true in earlier weeks of December, an embargo as to eastern shipments having been lifted on the twenty-seventh.

Since the advent of the new year, up to and including Tuesday, Jan. 6, there had been a dearth of cars in the Kanawha region. During the three days previous to the beginning of the new year, however, production had shown much improvement over the previous week, the supply of cars averaging 80 per cent. On Thursday, Jan.

1, however, the total loadings on the entire C. & O. system only reached 56,250 tons, the Kanawha region being affected in common with other districts. On both Friday and Saturday, Jan. 2 and 3, there was not more than a 55 per cent supply throughout the Kanawha district, and consequently many mines were either compelled to shut down or else to work only part time.

While the fairly good car supply during the first three days of the week made it possible to ship more coal than during Christmas week, yet the wind-up of the first week of the new year was highly discouraging, especially in view of the fact that there was no prospect of much improvement for the next 60 days. The eastern movement of coal from the Kanawha region was heavier than has been the case in recent weeks, owing to the removal of a tidewater embargo. Some coal also was shipped to tidewater for export, but the volume was limited although vessels were plentiful about the first of the year. Kanawha coal men, insofar as was possible with a limited car supply, were seeking to make some headway in reaching schedule once again on contracts, finding at the same time a quite healthy demand for spot coal, despite the fact that the railroads had appeared to hoard an unnecessarily large amount during the strike.

Producers of the New River field were seriously handicapped, between Jan. 1 and Jan. 6, in shipping any coal owing to the acute car shortage. It has been worse than at any period of 1919, and, throughout the New River field during the period mentioned, the supply all told was not sufficient for more than two days loading. Between the end of the Christmas holidays and New Year's day, there were only three days in which it was possible to ship anything like the usual amount of coal. Of course during the week, which began on Dec. 29, New River producers began to export smokeless coal once again but not in particularly large quantities. Still, they believe that it will not take long to exhaust the present tonnage on hand at tidewater, when it will be possible to ship export coal in larger quantities, that being the most desirable business to have under present government prices.

New River and other operators are greatly incensed at the notice received from the Hampton Roads Committee, that 60,000 tons of high-volatile and smokeless coal would be commandeered, in the week between Jan. 5 and Jan. 10, for the Boston & Maine at Government prices, that meaning a loss of one dollar a ton or \$60,000 to operators. More money from the railroads for diverted and confiscated coal is beginning to dribble into the New River region.

Bluefield, W. Va.

Production in smokeless fields larger in period following Christmas week. Car shortage develops. Outlook unfavorable for heavy smokeless shipments. Exports limited. Virginian car supply normal; C. & O. 60 per cent; N. & W. transportation inadequate, motive power insufficient.

Greatly diversified conditions existed in the four smokeless fields of West Virginia during the period ended Jan. 3; two of the smokeless districts having a supply much improved over the Christmas week; another district having a full supply as far as one railroad was concerned, while the fourth district had an adequate supply during half of the week. Taking the smokeless territory as a whole, however, and including in it the Williamson (high volatile) field, there was a much larger production than during the Christmas week, notwithstanding the fact that all miners had not returned from their Christmas vacation. However, there was a larger percentage of men at work on New Year's day than had generally been expected. Full complements of men were at work in only a comparatively small number of mines in the non-union smokeless fields up until Jan. 7, but in union smokeless fields there was comparatively little idleness after the Christmas holidays had

ended. Of course with more miners back at work such car shortages as existed became more patent.

While there had been no shortage of cars to speak of during the week ended the third in Norfolk & Western territory, one began to develop during the week beginning Jan. 5, with the result that a number of mines were shut down by Tuesday from that cause alone. Indeed the outlook for the week ended Jan. 10, for a large movement of smokeless coal, was extremely unfavorable. It had been hoped that beginning the fifth there would be a better export movement than had even been possible during the preceding week, but a car shortage and insufficient motive power blocked many side tracks with loads and retarded the movement and the placement of empties. Only certain sales agencies in various smokeless fields were permitted to make consignments of coal for foreign markets, although vessels have been plentiful, it is understood, so that the tonnage of export coal moving to the seaboard is still to some extent limited.

During the week ended Jan. 3, the Winding Gulf district was gradually regaining its normal producing strength, recovering from the holiday exodus of miners, who in large numbers left the field to celebrate the holidays. While the Winding Gulf district had a splendid car supply throughout the first three weeks of December and while the car supply on the Virginian during the week ended the third was almost normal, the supply on the C. & O. was only about 60 per cent of normal and Winding Gulf operators are extremely uneasy about the outlook for transportation facilities on the C. & O. during the next few weeks, as there is a vast accumulation of coal loads standing west of Huntington. It is stated that in many instances consumers in the West, who were anxious for coal during the strike, are now being supplied from the home mines and are unwilling to take coal from West Virginia, carrying as it does an extra freight rate from the Winding Gulf fields. It is feared that it will take some time to get the western accumulation worked off and the empties back into the various West Virginia fields.

Tug River totals jumped from 33,000 tons for Christmas week to 77,700 tons during the week ended the third, with 14,100 cars loaded on the fifth. Tug River operators were just beginning to preen themselves on the fact that after a light loading during the holidays, the field had restored production to normal, when another car shortage made its appearance in this territory on Jan. 6, forcing a number of mines to suspend operations, such a shortage being extremely unusual so early in the week. The outlook for the balance of the week was extremely unfavorable. Another factor in hampering the move of both loads and empties has been an insufficient motive power which has choked side tracks with loads and has of course interfered with the prompt handling of empties. Even export coal is not moving as freely as would be possible were restrictions out of the way and the car supply more favorable.

Production took a sharp turn upward during the week ended Jan. 3 in the Pocahontas region after the Christmas lull reaching a total of about 278,000 tons or approximately 150,000 tons more than had been produced during the week ended the twenty-seventh, there being little complaint of a car shortage. Such a shortage, however, began to rear its head about the sixth just at a time when operators were beginning to feel somewhat optimistic over the export outlook.

Huntington, W. Va.

Car supply about 50 per cent of normal first of the year. Some 30,000 tons of Logan coal commandeered for railroad use. A loss of \$30,000 to the operators. Payments by railroads for confiscated and diverted coal exceedingly slow.

Production in the Guyan field was still under normal during the week ended Jan. 3, reaching a total of only 197,000 tons although that represented an increase of 73,000 tons over the output of Christmas week. Loadings would have been much larger but for the fact that once again an insufficient supply of cars made it impossible to operate mines to capacity, although during the last three days of the year production was almost normal. It was during the last half of the week, however, that production was affected by a car shortage, the supply during the period in question being little more than 50 per cent. Cars were equally scarce during the early part of the week beginning Jan. 6, so that not more than 25,000 tons a day was being loaded. Another factor in holding down production was a labor shortage on

New Year's day though more men were at work than had really been expected.

A damper was put on the effort of some Logan operators, at least as to export coal, when on Jan. 6, word was received that the Hampton Roads Committee had directed that 30,000 tons of high volatile coal from the Logan field be commandeered and used as fuel for the Boston & Maine R.R.; the coal is to be paid for, not at export prices, though shipped to tidewater to be exported, but at Government prices, or in other words about one dollar a ton under the export price. Commandeering of the tonnage in question meant a loss of \$30,000 to the operators. Some of the Logan operators indicated they would make an effort to prevent such commandeering as being unfair and unjust.

Movement of Logan coal to western points has been retarded somewhat by the large amount of loads at Russell, Ky., awaiting disposition and to the refusal of roads west of Cincinnati to accept shipments from the New River and Logan fields. Not only has the non-delivery of quite a large tonnage, confiscated or diverted or held for diversion during the strike, curtailed the number of empties available but it has augmented the large sums outstanding and due to shippers, and Logan operators still find it necessary to utilize trade acceptances in order to finance their business. Payments by railroads and by ultimate consignees have been exceedingly slow and much red tape has also delayed payments.

Large loadings during the last three days of 1919 were all that stood in the way of a very material decrease in the tonnage of coal handled by the Chesapeake & Ohio during the week ending the third. During that period the railroad company handled 12,127 cars of coal or 606,350 tons.

Fairmont, W. Va.

Car shortage limits production in northern West Virginia fields. Many Fairmont region mines idle first of the year. Embargo removed, exports picking up again. Much heralded payments for diverted coal proving Will-o'-the-Wisps.

While the supply of cars for the various fields in northern West Virginia was insufficient for full requirements of the mines during the week ended Jan. 3, there was about 80 per cent supply during all but two days of the week. The old year has ended and the new year ushered in, however, with a lower supply than obtained during any other part of the weekly working period. In the Fairmont region for instance there were not more than 600 or 700 cars available on the thirty-first as against about 1600 ordered, similar conditions prevailing elsewhere throughout the northern part of the state. Likewise on Jan. 1, while the supply was somewhat larger, it still lacked much of being sufficient to enable mines to work full time. The greatest number of mines shut down, however, was on Thursday when in the Fairmont region alone 64 mines were unable to operate because of an absence of cars and, during the remainder of the week, mines at scattered points were still marking time because of transportation disabilities.

While export markets afforded an outlet once again beginning Dec. 29, following the removal of the export embargo, shipments of that nature were not particularly large, in fact not as large as had been expected, due no doubt to the large tonnage at tidewater awaiting shipping facilities and also due to restrictions still existing. Still, it is stated that quite a large tonnage has recently been shipped to the West Indies and South America from northern West Virginia points.

Northern West Virginia operators are still living in hopes that they will soon begin to receive compensation for the large tonnage of coal diverted and confiscated while the strike was in effect. During the week ended the third some encouragement was derived from the fact that information was being furnished by delivering roads showing the final destination of some of the coal produced in northern West Virginia during the strike. The much heralded payments for diverted coal are proving to be something of the Will-o'-the-Wisp so far as northern West Virginia operators are concerned.

The number of cars ordered by various mines indicates quite a healthy demand, being much larger than usual. Production in the Fairmont region during December reached a total of 1,373,800 tons, other regions producing in like proportion. Operators are busy endeavoring to bring contract deliveries up to date and trying to take care of spot orders. Railroads were lighter buyers during the week ended the third than was the case in previous weeks.

Ashland, Ky.

Car supply good at end of 1919, but principal loss in production at beginning of new year. Miners get back to work promptly after holidays. In general embargoes removed on northeast Kentucky coal.

The excellent car supply prevailing during the last three days of 1919, enabled mines in the northeast Kentucky fields to increase production about 40,000 tons over the output for Christmas week. Taking the week as a whole there was a total output during the weekly working period ended Jan. 3, of 143,000 tons, that representing about 63 per cent of capacity. The largest source of loss was found in a car shortage of 41,000 tons, equivalent to 21 per cent of capacity. The labor shortage loss of 28,000 tons represented 13 per cent of capacity, there being a loss of only 7,000 tons or 3 per cent from mine disability.

The principal losses in production came after the end of the year or during the last three days of the week ended the third, when New Year's day and then extremely cold weather apparently exerted quite a potent effect on the movement of empties. This was especially true on the Chesapeake & Ohio since that road was able to furnish only about half enough cars to mines during the last half of the week, making an average car-shortage loss on that road for the week of 25 per cent and offsetting the good supply existing during the first three days of that period.

While the worst car shortages have usually been at Louisville & Nashville mines, yet the week ended the third, or rather the first part of that week, was an exception since all mines on the road in question were fully supplied until the end of the year, the car shortage on the L. & N. reaching only 12 per cent of capacity.

More work was done by the miners in northeast Kentucky during the holiday periods which wound up 1919, than during the holiday period a year ago, as shown by a greatly increased holiday production for 1919; for the two weeks in question the tonnage being 221,000 as compared with only 188,000 tons during the corresponding two weeks of 1918. Railroad officials were hardly prepared for the general resumption of work so soon after the holidays and it caught them, in a sense, unawares. Promptness of the miners in going back to work so soon was probably due to the general shortage of funds among them and also to the fact that Christmas beverages were harder to obtain.

One source of a car shortage is the large number of loads at Russell, Ky., a distributing point held, during the general shortage of coal, for distribution to points in the West, but since then unacceptable for that purpose with western mines in operation.

The market for northeast Kentucky coal was somewhat enlarged through the removal of embargoes on eastern shipments and on embargoes in general, and northeast Kentucky producers found a ready market for their product.

Victoria, B. C.

The fatal-accident record in British Columbia in 1919. Growing interest of miners in acquirement of knowledge. Efficiency of Mines Inspection Staff. Interesting statistics.

Only twelve fatal accidents occurred in the coal mines of British Columbia during 1919. This is a new record of quite a satisfactory character; never before in the history of coal mining in this province has it been equalled. In point of number of deaths it has been paralleled once in the last 21 years. This occurred in the year 1905, but it should be remembered in considering the statistics of that year, that then there were little more than half as many men employed in and around the mines as now is the case.

This announcement regarding the operation of the coal industry of the province was made on Jan. 7, 1920, by Hon. William Sloan, Minister of Mines. That he was gratified is scarcely an adequate expression of his sentiment. He trusted that with the growing interest being manifested by miners in the acquirement of knowledge of mine gases and their apparent greater appreciation of the importance of the safety-first principle, it would be possible to continue the contemplation of similar or even more satisfactory figures. Mr. Sloan also complimented George Wilkinson, Chief Inspector of Mines, on the evidence of the efficiency of the Mines Inspection Staff of the Provincial Bureau of Mines.

Of the 12 accidents referred to four were the result of falls of rock; four re-

sulted from falls of coal; and an equal number occurred in the handling of mine cars and in haulage. The fatalities were divided among the collieries as follows:

Canadian Collieries, Ltd., Cumberland....5 (all of whom were Orientals)	
Canadian Collieries, Ltd., Extension.....2	
Canadian Western Fuel Co., Nanaimo, B.C.4	
Crow's Nest Pass Coal Co., Coal Creek...1	
Total	12

The nationality of those killed was as follows: English, 2; Scotch, 2; Canadian, 1; Italian, 1; Austrian, 1 (naturalized British); Orientals, 5.

An estimate of the fatalities per 1,000 employees would put the percentage at approximately 2.2 as compared to the average of the past ten years of 5.095. This year's average, therefore, compares quite favorably with that of Great Britain and other European countries; this is worthy of special note when it is borne in mind that in the coal fields of the United Kingdom and of the Continent there are so many more miners actively engaged, and that it takes more than one serious accident to materially affect the general average at the end of a given period.

Only one fatality occurred in the mines of the Crow's Nest Pass district during 1919. This again is a record, if the eastern British Columbia field is considered apart from the rest of the province. It is the lowest mark since the first year of the field's development, over twenty years ago. Mr. Wilkinson notes, in his report, that the majority of these 12 fatal accidents could have been avoided had ordinary care been exercised.

PENNSYLVANIA

Anthracite

Seranton.—The miners of the Hyde Park colliery of the Delaware, Lackawanna & Western R.R. Co.'s Coal Department, have made a request that further mining in the surface seam of the colliery under the Washburn Street Cemetery be discontinued. The matter, it is said, has been brought to the attention of the lesser officials of the coal company, and the wishes of the men will be carried to the head of the corporation within a brief period. From what is learned, a great amount of coal has been removed from under the cemetery but by leaving the pillars that remain and filling in the voids the cemetery can be made safe. Should the mining be continued the graves probably will be disturbed and there will be a repetition of the conditions that have befallen other cemeteries in this city and valley as the result of the mining of coal. It is said the miners have protested against further operations under the cemetery that are liable to cause havoc and that some of them have openly refused to further mine coal in that area.

Well defined reports in mining circles, says a Seranton authority, are to the effect that the Hudson Coal Co. is about to dispose of a number of its collieries in the Seranton and Wilkes-Barre districts. The Dickson and the Manville collieries in this district are slated to be sold, it is stated, and report has it that the Lafin in the Wilkes-Barre district will be taken over by the Suffolk Coal Co., controlled by the Jermyn interests. This company recently started operating the Langcliffe colliery which it acquired from the Hudson company. It was stated that the Von Storch Collieries Co., which has taken over the Van Storch mine, is negotiating for both the Manville and the Dickson; but Warren Acker, one of the owners of the Von Storch, said that the purchase is not contemplated at this time. He intimated his company will wait until the new operation is definitely under way.

For some time the Manville was operated alternately by the Hudson company and the Delaware, Lackawanna and Western company; finally the former company purchased the Lackawanna interest. This appears to have been the motive of the Hudson company inasmuch as its sale could be more easily accomplished than when it was under the joint ownership.

ARKANSAS

Fort Smith.—The State Mining Board here (Jan. 3) upheld Governor C. H. Brough in discharging Thomas H. Shaw, as State Mine Inspector. Mr. Shaw asked the local Circuit Court for an injunction restraining the board "from interfering with him in the discharge of his duties as State Mine Inspector." Hearings on the injunction requested by Mr. Shaw and for the continuance of the temporary order issued against him are set for an early date.

During the last week in December, Mr.

Shaw has been refused admittance to a number of mines in this section. In one instance, 700 miners employed by the Central Coal & Coke Co., at Huntington, refused to enter the mines when they found (upon reporting for work) a notice posted by Mr. Shaw, as State Mine Inspector, declaring the mine closed. He posted the notice when refused admittance by the company officials, who claimed they had received orders from the governor not to admit Shaw as he no longer was State Mine Inspector. Governor Brough said that mine officials who had refused to allow Mr. Shaw to enter the mines, had acted under his instructions, and that appeals to the Supreme Court from rulings of justice courts, fining the mine officials, would be taken. According to a dispatch from Fort Smith, Mr. Shaw intends to close every mine in the state where officials refuse to recognize him as state inspector. He contends that Governor Brough did not have the legal grounds for his removal.

WASHINGTON

Colville.—The Colville Valley Coal Co., at Valley, south of this place, has attained a depth of 475 ft. in its slope and expects to sink 200 ft. deeper, according to H. G. West, secretary-treasurer of the company. The seam is ten ft. thick at the bottom of the slope and is said to be clean coal. An entry was started at a depth of 450 ft. Owing to the condition of the road between the mine and the railroad loading point, transportation of coal to market is impracticable at present; efforts are being centered upon development work.

Foreign News

Lens, France.—According to estimates made by the manager of the Society of Mines at Lens, the mines, which were destroyed and flooded by the Germans, will be in shape for mining operations in five years. In ten years it is predicted that the production will reach the mark of 1913. At present pumps of 30,000 hp. are at work, and, it is said, they will have the mines dry in two and a half years. In 1913 these mines produced four million tons of coal, one-tenth of the French coal output.

Brussels, Belgium.—It is reported that Belgium is contemplating a plan of centralizing the coal output and controlling its distribution in order to obviate the effects of the present crisis. According to this plan, groups would be organized in each province for every branch of industry. These groups would centralize the orders which would be forwarded to a special organization connected with the Ministry of Economic Affairs. This ministry would allocate coal among provincial groups in proportion to the quantity available, and these provincial groups would handle the distribution.

Sydney, N. S.—It is officially announced that as a result of the improved methods of mining by the Dominion Coal Co., in its Cape Breton workings, that the output for December amounts to 312,891 tons, as compared with 272,725 tons for December, 1918.

This represents a gain of nearly 15 per cent. President Workman states that January should show an even greater increase. The installation of turbine generators has proved completely successful. Electricity generated by the new equipment is being utilized on the company's shipping piers. The embargo on the shipment of coal to foreign ports having been lifted, a considerable export trade is anticipated.

Coming Meetings

Northern West Virginia Coal Operators' Association will hold its next meeting Feb. 10, 1920, at Fairmont, W. Va. Secretary, George T. Bell, Fairmont, W. Va.

American Institute of Mining and Metallurgical Engineers will hold its next meeting Feb. 16 to 19, in New York City. Secretary Bradley Stoughton, 29 West 39th St., New York City.

The Wholesale Coal Trade Association of New York will hold its next meeting Jan. 20, 1920, at the Whitehall Club, New York City. Secretary, Charles S. Allen, 1 Broadway, New York City.

The Rocky Mountain Coal Mining Institute will hold its winter meeting Jan. 20 to 22, 1920, at Denver, Colo., with headquarters at the Albany Hotel. Secretary, F. W. Whiteside, Denver, Colo.

The Material Handling Machinery Manufacturing Association will hold an open convention at the Waldorf-Astoria Hotel, New York City, Jan. 29 and 30. Secretary, Z. W. Carter, 35 West 39th St., New York City.

Indiana Engineering Society will hold its annual meeting Jan. 23 and 24 at the Claypool Hotel, Indianapolis, Ind. Secretary, Charles Brossman, 1503 Merchants Bank Building, Indianapolis, Ind.

Personals

H. H. Stagers, of Fairmont, is manager and coal purchasing agent for A. R. Hamilton & Co., coal jobbers of Pittsburgh, his territory includes West Virginia.

Arthur A. Allan, superintendent of the Adah mine of the Westmoreland-Fayette Coal & Coke Co., at Cheat Haven, Fayette County, Pa., has been promoted to the position of general superintendent of the company with headquarters at Fairmont, W. Va.

Hod Eller, the baseball pitcher, who was largely instrumental in winning the World's championship for the Cincinnati Reds, states that he has completed negotiations whereby he is to become part owner in a Danville (Ill.) coal mine and serve as assistant general manager of the concern.

A. A. Straub, Jay W. Johns and T. J. Atkinson, recently associated with the Superba Coal & Coke Co. as vice president and general manager, general coal sales manager and general coke sales manager, respectively, have organized the Straub-Atkinson Coal & Coke Co., beginning Jan. 1, 1920, with offices, Suite 351 Union Arcade Building, Pittsburgh, Pa.

Frederick Howarth, of Brownsville, Pa., superintendent of Alicia No. 2 mine of the Pittsburgh Steel Co., has resigned that position, effective Jan. 15, to enter upon the duties of superintendent of the Isabella mine and coke ovens of the Hillman Coal & Coke Co., at Hillcocke, Fayette County, Pa., succeeding David E. Parker. Mr. Howarth is a son of William E. Howarth, a district state mine inspector, of Brownsville, Pa.

W. P. Melring has resigned as general superintendent of the Himler Coal Co. to open offices in Williamson, W. Va. as a consulting mining engineer; he purchased the business of the firm of Evans & Knight. Mr. Melring was for six years with the Pond Creek Coal Co. as engineer, chief mine inspector and assistant general superintendent.

Obituary

C. E. Kunz, died at his apartments at the Elks Club in Albuquerque, N. M., on Jan. 2. Death is believed to have resulted from heart disease. He was president of the New States Coal Company.

William W. Ray, a coal operator, died at Terre Haute, Ind. recently. He was 60 years of age. He was a native of Cambridge City, Ind., and came to Terre Haute, in the early eighties. Later he engaged in the coal business; he was president of the Sanford Mining Co. and the Big Vein Mining Co. Mr. Ray is survived by a widow and two children.

John H. Reilly, superintendent of the Reilly-Callaghan coal mines, Georges Township, Fayette County, Pa., was killed in the mines he had charge of on Dec. 31, by being run down by a trip of cars in the mines. He was buried in Uniontown, Pa. He was a son of E. S. Reilly, of the Reilly-Peabody Fuel Co. and the American Connellsville Coal & Coke Co., of Pittsburgh, Pa.

John Cooper Thomas, a wealthy coal operator of Bramwell, W. Va., died on Jan. 6 at the age of 24 years. He was at his winter residence on Belle Isle, Miami, Fla. Mr. Thomas was an airman during the war. His father was a son-in-law of John Cooper, a pioneer operator of the Pocahontas field. The Cooper and Thomas interests controlled valuable coal properties in southern West Virginia.

Thomas Lilley, 72 years old, millionaire coal operator and farmer, died suddenly at his home in West Brownsville, Pa., Jan. 5, from apoplexy. Mr. Lilley was the founder and president of the Lilley Coal & Coke Co., and owned a large acreage of coal lands in Washington County, Pa. He laid the foundation for his fortune by cattle dealing and farming. In 1913 he established the Lilley Coal & Coke Co., which has an output of 2,500 tons daily.

Publications Received

Coal, Pennsylvania—Bituminous. No. 1. Cost Report of the Federal Trade Commission. Illustrated; pp. 103; 5½ x 9½ inches.

Preliminary Report on the Mineral Resources of the United States in 1918. Department of the Interior. U. S. Geological Survey. Unillustrated; 5½ x 9½ inches.

Extinguishing and Preventing Oil and Gas Fires. By C. P. Bowie. Bulletin 170. Petroleum Technology 48. Department of the Interior, Bureau of Mines. Illustrated; pp. 50; 6 x 9 inches.

Prices of Coal and Coke. War Industries Board. W. L. B. Price. Bulletin 35 of the series—History of Prices During the War. Illustrated; pp. 115; 5½ x 9½ inches.

Notes on the Black Sand Deposits of Southern Oregon and Northern California. By R. R. Hornor. Technical Paper 196. Department of the Interior, Bureau of Mines. Illustrated; pp. 42; 6 x 9 inches.

Coke and Byproducts in 1916 and 1917. Department of the Interior, U. S. Geological Survey. By C. E. Leshner and W. T. Thom, Jr. Published Sept. 19, 1919. Illustrated; pp. 1137-1202 (Mineral Resources of U. S. 1917—Part II); 5½ x 9½ inches.

Coal Mine Fatalities in the United States in 1918. Compiled by Albert H. Fay. Department of the Interior, Bureau of Mines. Unillustrated; pp. 61; 5½ x 9½ inches. Also contains a list of explosives, lamps and motors tested prior to Jan. 31, 1919.

Asbestos.—Published by Secretarial Service, Bulletin Bldg., Philadelphia, Pa., Vol. 1, No. 3, Sept. 1919. This new publication—Asbestos—is published in the interest of the asbestos and magnesite industry; it is designed to be the mouthpiece of the industry which it represents. Illustrated; pp. 28; 5 x 7½ inches.

Geology and Coal Resources of the Coal-Bearing Portion of Tazewell County, Virginia. By T. K. Hainesberger. Virginia Geological Survey, University of Virginia, Charlottesville, Va. Prepared in co-operation with the U. S. Geological Survey. Bulletin XIX. Illustrated; pp. 195; 7 x 10 inches.

Trade Catalogs

The Pyrograph. Davis-Bournonville Co., Jersey City, N. J. Bulletin. Pp. 8; 8½ x 11 in.; illustrated. This boiler shop cutting machine is described and shown in operation.

Blawforms. Blaw-Knox Co., Pittsburgh, Pa. Booklet. Pp. 24; 6 x 9 in.; illustrated. Illustrates the applicability of this type of form for road, sidewalk, curb, and curb and gutter construction.

Rails. Walter A. Zeinicker Supply Co., St. Louis, Mo. Bulletin No. 266. Pp. 8; 3½ x 8½ in.; illustrated. A folder announcing new and second-hand railway equipment and accessories.

Condensers, Pumps, Cooling Towers, Etc. Wheeler Condenser & Engineering Co., Carteret, N. J. Bulletin 112-B. Pp. 36; 8 x 10½ in.; illustrated. Complete description of the apparatus manufactured by the Wheeler company.

Nickel and Its Products. The International Nickel Co., 43 Exchange Place, New York City. Booklet. Pp. 21; 4 x 9½ in.; illustrated. A description of the company's nickel products for the use of prospective purchasers.

Stine Special Machinery for Mine Use. S. B. Stine, Inc., Osceola Mills, Pa. Bulletin 110. Pp. 8; 6½ x 10 in.; illustrated. A catalogue describing the fans, incline machinery and hoists made by this company.

How Columbian Rope is Made. Columbian Rope Co., Auburn, N. Y. Folder. Pp. 16; 4½ x 8½ in.; illustrated. A graphical presentation of the processes used in manufacturing Columbian manila rope—brief description accompanying.

Lane Electric Cranes. Lane Manufacturing Co., Montpelier, Vt. U. S. Payne & Co., 25 Church St., New York City, sole agents. Bulletin. Pp. 8; 8½ x 11 in.; illustrated. Description of several styles of Lane cranes and list of some of its users.

Byproduct Coke and Gas Plants. The Koppers Co., Pittsburgh, Pa. Pp. 67; 7 x 10 in.; illustrated. The 1919 edition

of The Koppers Co.'s booklet giving information about the Koppers oven and illustrations of some of the plants of this make in the United States. Byproduct oven and byproducts data noted.

Motor Trucks from a Practical Engineering Standpoint. International Motor Co., New York City. Booklet. Pp. 75; 4½ x 7½; illustrated. The motor company states that it has tried (in this booklet) to express in simple, straight-forward language, the outstanding features of the Mack truck and the various reasons why each feature of construction has been adopted.

Milliken Buildings.—Milliken Brothers Manufacturing Co., Inc., New York, N. Y. Catalogues 10 and 11, respectively. Pp. 44 and 31, respectively; 8½ x 11 in.; illustrated. Catalogue 10—"Choice of a Thousand Buildings." Catalogue 11—"Erection Handbook." These catalogues are descriptive of Milliken buildings, constructed under the standardized truss unit system designed and perfected by the Milliken company.

Sanitary Drinking Fountains.—Department F.; **Metal Stools and Chairs,** Department D.; **Sanitary Washbowls,** Department A; **Metal Lockers,** Department B; **Miscellaneous,** Department G. Above—pp. 8; 6 x 9 in.; illustrated. **Racks,** Department E. Pp. 16; 6 x 9 in.; illustrated. Manufacturing Equipment and Engineering Co., Boston, Mass. These catalogues illustrate and note details about the various specialties in question. Additional information is published for distribution in the form of sheets and folders covering various metal, sanitary and fireproof equipment, lists of users and price lists.

Details Allis-Chalmers Oil Engines, Diesel Type. Allis-Chalmers Manufacturing Co., Milwaukee, Wis. Bulletin 1537. Pp. 31; 7½ x 10½ in.; illustrated. Illustrates and notes special parts of the various pieces which make up the Diesel engine made by this company to assist in ordering repair and spare parts. **Centrifugal Pumps and Centrifugal Pumping Units.** Allis-Chalmers Manufacturing Co., Milwaukee, Wis. Bulletin 1632-C. Pp. 51; 7½ x 10½ in.; illustrated. Complete description of the special types of centrifugal pumps and centrifugal pumping units made by the Allis-Chalmers Co.

Industrial News

Nashville, Tenn.—The Phoenix Coal Co. of this place has increased its capital stock from \$100,000 to \$200,000.

Clarksburg, W. Va.—The Wolf Summit Coal Co. has increased its capital from \$350,000 to \$750,000 to provide for proposed business expansion.

Follansbee, W. Va.—The J. C. Arnold Coal Co. is planning for the development of an additional mine in the Follansbee district.

Cleveland, Ohio—The International Collieries Co., has been incorporated with a capital of \$10,000 by Robert E. Roehms, George M. Roubeshush, Horatio Ford, K. C. Junke and N. I. Young.

Pittsburgh, Pa.—The Blanchard Coal Co. has been incorporated with a capital of \$300,000. The incorporators are: Wm. G. Blanchard, Frank H. Robinson, Walter H. Hopple, of Pittsburgh, Pa.

Canton, Ohio—The Willard Gas Coal Co. of this place has been incorporated for \$150,000; George A. Williams, C. A. McDonald, Celsus Pomerene, Thomas H. Miller, Ralph S. Ambler, incorporators.

Lexington, Ky.—The Wisconsin Coal Co. has been incorporated with a capital of \$200,000 to engage in general coal mining operations in the Lexington district. J. H. Bowling, N. B. Perkins, and A. V. Brown are the incorporators.

Canton, Ohio.—The Willard Gas Coal Co., has been chartered with a capital of \$150,000 to mine and sell coal. The incorporators are: George A. Williams, C. A. McDonald, Celsus Pomerene, Thomas H. Miller and Ralph S. Ambler.

Cincinnati, Ohio.—The Deaker Mining Co., of Kingwood, W. Va., has been incorporated to operate mines in Preston County; capital stock, \$300,000; incorporators, A. T. Carnahan, George M. Anderson, J. A. Hagstrom, F. G. Carnahan and M. E. Schieb, all of Akron, Ohio.

Washington, D. C.—Blocks aggregating 9,445.92 acres in the Cook Inlet coal field were offered for lease about the first of January, by Secretary Lane under the Alaska coal land leasing law. Applications will be received at the general land office through the month of January.

Martin's Ferry, Ohio.—An explosion in the Laughlin mine of the American Sheet & Tin Plate Co., near here, caused 13 miners to be imprisoned for a time but they dug themselves out. Three of the miners were badly burned. A fire following the explosion was quickly extinguished.

Himlar, W. Va.—The Matta Co-Operative Coal Co., of this place has been incorporated to operate mines in Mingo County; capital stock, \$250,000; incorporators, John Matta, Martin Himlar, E. J. Lang, William Fotta and Claude Clark, all of Himlar.

Columbus, Ohio.—The Echo Coal Co., has been chartered with a capital of \$10,000 to mine and sell coal. The concern will increase its capital at an early date, and negotiations are now in progress for a large tract of coal lands in the Hocking Valley. The incorporators are S. Cottingham, Fred Essex, O. E. Harrison, T. J. Frasure and H. C. Alread.

Birmingham, Ala.—Papers of incorporation of the Southern Appalachian Coal & Iron Co. were filed in Gadsden recently. The company has purchased about 12,000 acres of mineral lands near Ft. Wayne, De Kalb County, and, it is stated, will begin developments at once. The incorporators are W. L. Smith, D. E. Mitchell, E. R. Lefevre and G. E. Hill. E. R. Lefevre is president of the company, which is capitalized at \$75,000.

Columbus, Ohio.—In a decision handed down recently in the case of John H. Winder, president of the Sunday Creek Coal Co., against John S. Jones, chairman of the coal company's board of directors, Federal Judge Sater refused to grant Winder's plea that a receiver be appointed. The court also reduced a \$1,477,000 claim of Jones in the amount of \$333,000, and ordered a receiver appointed for the Steadman Wholesale Grocery Co., of Athens, a holding of the company.

Brownsville, Pa.—The Diamond Coal & Coke Co., of Pittsburgh, Pa., is preparing to fire the 60 beehive coke ovens near here, recently purchased from the Brownsville Coke Co. The ovens are near the Pike mine of the Diamond Coal & Coke Co., from which workings the coal will be mined for use in these ovens. The mine of the Brownsville Coke Co. has been worked out and abandoned. W. Guy Sroder is general superintendent of the Diamond Coal & Coke Company.

Princeton, W. Va.—The Monticello Smokeless Coal Co., recently organized with a capital of \$400,000, is arranging plans for the development of approximately 1,800 acres of coal properties in the Princeton district. It is proposed to install complete mining machinery and equipment to provide an annual capacity in excess of 200,000 tons. F. M. Lee, Apoca, W. Va., is president and manager; Richard Hancock, Lynchburg, Va., is vice president; H. E. Jarnette, Princeton, secretary, and E. M. Merrill, Beckley, W. Va., treasurer.

St. Louis, Mo.—The Merchants' Exchange, through Charles Rippin, traffic manager, is urging the Ways and Means Committee of the Board of Aldermen, which is considering the proposed \$22,000,000 bond issue bill, to include an item for the completion of the free bridge, so that it will accomplish the purpose for which it was built—the elimination of the coal arbitrary of 20c. a ton. Rippin has suggested that team-track yards in the Mill Creek Valley, between Eighth St. and Jefferson Ave., could be used to good advantage. He has also urged that the city purchase locomotives and haul the coal across the bridge and if necessary construct a railroad from the bridge to the coal mines on the Illinois side.

St. Louis, Mo.—The Illinois Traction Co. is continuing to make connections with Illinois mines with a view to greatly enlarging its shipments into St. Louis. The traction line has been handling the output of the K.-D. mine, at Worden, which was sunk by Vincent Kerens and G. H. Donnewald of St. Louis and later sold to the traction company. Recently tracks were completed from the main line to the Liberty Mine, at Gillespie, the output of which also will be hauled to St. Louis. Arrangements have been made to connect with one of the large mines at Carlinville and surveys have been made for running connections to two Edwardsville mines—those of the East Side Coal Co. and the Madison County Mining Co.

Welch, W. Va.—It is reported that the Central Pocahontas Coal Co. has acquired all the holdings and assets of the New Pocahontas Coal Co. of Hemphill, from W. E. Deegans, O. C. Huffman, Jack Faulkner and others. The property adjoins the holdings of the Solvay company.



MARKET DEPARTMENT



Weekly Review

Production Is Above Average for Some Months Past. Prices Are Under Government Control and Holding Steady. Demand Fairly Active with Little Trouble Anywhere From Lack of Market.

PRODUCTION for the week ending Jan. 3 is estimated at 10,950,000 tons. This was an increase of 20.9 per cent as compared with the preceding week and nearly 30 per cent as compared with the corresponding week of 1919. Recovery from the strike is thus complete and production is now at a level which is well above the average of the past year.

Few fluctuations in price are noted since the figures covering coal at the mines are fixed by the Government. Complaint is heard that some mines are unable to produce coal and absorb the increased wage rates granted and

continue to sell their output at the fixed price without incurring serious loss. Some coal companies having contracts with public utilities have attempted to evade, or in a measure abrogate these agreements, giving car shortage as an excuse therefor, while at the same time endeavoring to ship coal to the seaboard for export. Such firms, as well as all others, are now finding it difficult to secure export permits unless they can show that they have kept faith with public utilities, and their other Americans customers generally.

Little complaint of no market is

heard anywhere. Car shortage has become the chief factor tending to restrict output. In some regions the demand is so insistent as to absorb all available supply and leave no possibility of wholesalers or retailers building up any stocks.

Industrially the country is booming. The steel strike has been called off and mills are running to the limits of either their capacities or the labor supply. The same conditions prevail in certain other industries, and the demand for fuel is now, therefore, and bids fair to continue, strong for an indefinite period.

WEEKLY PRODUCTION

From a recent report of the Geological Survey the bituminous industry entered the year 1920 with production at a rate well above any period in the past year except the week of Oct. 25, just before the coal strike. The output on the five working days of the week ended Jan. 3, 1920, averaged 2,066,000 tons. This was larger than the performance during any New Year's week of the past three years, the period over which the Geological Survey's records of weekly production extend.

The total output for the week is estimated at 10,950,000 net tons. This was an increase over Christmas week of 2,391,000 tons. The increase was partly due to the fact that about 660,000 tons were produced on New Year's Day itself while on Christmas Day the production was negligible. Taking the country as a whole, New Year's Day counted for about three-tenths of a full working day. The greater part of the increase, however, was an actual gain in rate of production, a gain which amounted to 20.9 per cent. Compared with New Year's week, last year, the increase was nearly 30 per cent.

The completeness of the recovery from the depression of the strike period is shown by the fact that on the last three days of the old year production averaged 107 per cent of the rate for the four weeks ended Oct. 25, which may be regarded as normal.

The total movement of soft coal from the mines to Atlantic ports was 2,235,000 net tons, less than half the record tonnage of October, and with the exception of March, the smallest in any month of 1919. Compared with November of the preceding year, the decrease was 1,035,000 tons.

Atlantic Seaboard

BOSTON

Market drags with only scattering inquiry. Few operators have inclination to take spot business. Steam users comfortably supplied. Receipts show slight increase. Export shipments resumed via New York and Philadelphia. Shipping Board advance likely to slow down coastwise shipments. Hampton Roads market quiet. Anthracite domestic sizes ease somewhat but produc-

tion falls off. Retailers disposed to keep taking coal.

Bituminous—Notwithstanding the manifest difficulty of buying spot coal under present regulations, there appears to be no snap whatever to the current market. The high grades are moving almost exclusively on old contracts, either at home or for export, and none but the inferior coals that in such a market would sell at less than the fixed price is available in any quantity. On the other hand, the demand in this territory is only scattering, and for the most part is confined to small current requirements that ordinarily are not the subject of contract.

Only a few large buyers show any interest: they are simply buying with accustomed prudence in anticipation of a possibly tightening market in February or March. Whether such a situation will develop it is difficult now to say; much depends upon receipts the next thirty days. The trade atmosphere is quiet, with more or less pronounced opinions on the futility of trying to carry through a fixed price under conditions such as now prevail.

In any case, there are relatively few operators who are at all inclined to accept spot business. Apparently there are ample consignments on file on which the wage increase can be assessed, and without doubt there will be resort to a number of expedients before any comprehensive order will be taken on the present Government price.

There is quiet selling on the part of producers who wanted to be as free as possible from season contracts, but judging from reports the number of operators who find themselves in this position is small. Those who have an output that ordinarily would not be considered in this territory are being favored with small orders by steam users who are impressed with the advantage of keeping coal coming. The aggregate of such business is not large, however, and it is quite likely that the mild weather will take something off the edge of what to-day promises to be a somewhat constricted market.

The Shipping Board has announced an advance of 75c. in the water rate from Hampton Roads to Boston, other destinations at the usual differentials. This is effective Jan. 10 and the trade is much interested to observe the effect on shipments the remainder of January. Today there is a bunching of steamers at both Norfolk and

Newport News due to strenuous efforts on the part of the agencies to clear cargoes coastwise before the advance goes into effect. The demand for prompt shipments off-shore also tends to an accumulation of waiting tonnage.

Generally, the Hampton Roads market is quiet. Output is on a satisfactory basis, the great bulk of it moving on contract, and for the present the fixed Government price is likely to cause the operators no particular embarrassment.

It remains to be seen what will happen in the spring when advances on coal, tolls, and water freights are likely to be combined in making a still greater differential in favor of all-rail deliveries from central Pennsylvania. There are those who figure that the 50 per cent drop in receipts by water during 1919, as compared with 1918, will not be a circumstance to the decrease tonnage which will be New England's portion next season from the Pocahontas and New River fields.

Anthracite—The demand for domestic sizes has eased noticeably the past few days. Milder weather accounts for some of the slackening demand, but the broad reason is that their territory is becoming fairly well stocked. There are communities that still need shipments to make up their full quota, but these are expected to come forward with less difficulty from now on.

There is developing among retailers an inclination to take on now what coal can be comfortably stored. This attitude commends itself to some of the far-sighted members of the trade, although there are certain shippers who to-day have difficulty in disposing of sizes like egg and pea.

NEW YORK

Pressure for domestic coals easier and dealers cancel orders. Chestnut and stove in strongest demand. Long Island dealers are said to be well supplied. Steam sizes hard to move except on concessions. Bituminous market quiet. Movement of coal slow and transatlantic steamers are delayed in sailing.

Anthracite—The intense pressure has become easier and the domestic sizes are in better shape. With the average temperatures remaining as they have been a few weeks longer, the situation will be considerably relieved, and there are tradesmen who venture the opinion that the piers will soon be stocked with coal.

Dealers are so well supplied that many of them have requested the companies to slow up their deliveries. Many cancellations of orders for individual coals were reported to have been made and it was said that no dealers were willing to pay more than 75c premium for domestic sizes.

Reports from the West, New England and Canada indicate good sized supplies on hand and the dealers not anxious to add to their stocks. Many dealers on Long Island are said to have full bins.

There were reports that some individual operators were out looking for buyers and that some of them predicted that unless the weather becomes colder within the next few days that concessions would have to be made to move the coal.

The large producing companies did not have any great amount of supplies here. They were taking care of their regular customers without any difficulty. Chestnut and stove were the sizes most in demand with egg and pea close seconds.

The steam coals are inactive. Demand for these sizes is quiet and they are accumulating rapidly. Buckwheat and rice are not yet a burden, but it entails considerable work to keep stocks down. Barley is the hardest to move and it is necessary very often to make concessions.

During the week ended Jan. 9 there were 5,190 cars of anthracite dumped at the railroad piers in this harbor as compared with 5,618 cars the previous week, a decrease of 428 cars.

Current quotations for company coals, per gross tons, at the mines and f.o.b., tidewater, at the lower ports are as follows:

	Mine	F.O.B. Tidewater
Broken.....	\$5.95	\$7.80
Egg.....	6.35	8.20
Stove.....	6.60	8.45
Chestnut.....	6.70	8.55
Pea.....	5.30	7.05
Buckwheat.....	3.40	5.15
Rice.....	2.75	4.50
Barley.....	2.25	4.00
Boiler.....	2.50	4.25

Quotations for domestic coals at the upper ports are generally 5c. higher on account of the difference in freight rates.

The following are the retail prices in Manhattan and the Bronx, following the advance of 50c. per ton on domestic sizes, 25c. on steam sizes and 65c. on bituminous, as the result of the \$6 per week wage increase granted the employees of the dealers on Jan. 1:

Broken.....	\$11.05
Egg.....	11.25
Stove.....	11.50
Chestnut.....	11.60
Pea.....	9.50
Buckwheat.....	7.15
Buckwheat No. 2.....	6.50
Buckwheat No. 3.....	6.00
Bituminous.....	7.90
Red Ash.....	12.50
Lykens Valley.....	13.25
Cumberland.....	8.65
Cannel.....	20.00
Coke.....	10.50

These prices are for coal delivered on consumer's sidewalk. Yards prices to peddlers are \$1 less than above prices. On deliveries north of Moshulu Road, Bronx, a extra charge of 25c. per ton is made.

The retail prices in Brooklyn for the domestic sizes, put in consumers' bins, are:

Broken and egg, \$11.25; stove and chestnut, \$11.50, and pea, \$9.50.

Advances in the retail prices went into effect in Jersey City on New Year's Day. The new schedule follows:

	Side-walk	In Bins	Yard
Grate.....	\$10.50	\$11.00	\$9.00
Egg.....	10.50	11.00	9.25
Stove.....	10.75	11.25	9.50
Chestnut.....	10.75	11.25	9.50
Pea.....	9.25	9.75	8.00
Buckwheat.....	6.75	7.25	6.25
Rice.....	6.15	6.65	5.80
Barley.....	5.65	6.15	4.65
Bituminous.....	7.75	8.25	6.75
Dust.....	2.75	3.25	1.75
Blacksmith.....	8.25	8.75	7.25
Coke.....	9.50	10.00	8.00

Bituminous—Considerable complaint is being heard here of slow deliveries. Several of the piers have been short of coal while frozen coal in the cars has also helped to make matters worse. Some boatmen say that less coal is being handled in this harbor now than was handled during the strike. In addition to dealers not receiving their requirements, there is much delay in bunkering vessels and many trans-

atlantic steamers have been delayed in sailing several hours because of the slow deliveries.

Notwithstanding the slow movement of coal there was an increase in the number of cars of bituminous dumped at the local railroad piers during the week ended Jan. 9. The reports show 4,979 cars dumped as compared with 4,492 cars the previous 7 days, an increase of 487 cars. On Jan. 9 there were 2,011 loaded cars on the tracks as compared with 2,979 cars on Jan. 2.

An improvement in car supply was reported along the Baltimore & Ohio and the Western Maryland R.R. The reported advance by the Shipping Board of 75c. a ton in coal rates from Hampton Roads ports and Baltimore to Boston and other New England ports, which became effective on Jan. 10, is not likely to affect local conditions.

Contract deliveries are taking all the better grades of coal and most of what is left is being taken care of by those engaged in bunkering vessels. The spot buyer is having a hard time picking up odd lots. Free coals are hard to get but no one is suffering from lack of coal.

Under the orders of the Fuel Administration the maximum prices at the mine for certain grades handled here are:

	Mine-Run	Prepared	Slack
Central Pennsylvania.....	\$2.95	\$2.95	\$2.95
Western Pennsylvania.....	2.35	2.60	2.35
Fairmont.....	2.50	2.75	2.25
George's Creek, Upper Cumberland and Piedmont Fields.....	2.75	3.00	2.50

PHILADELPHIA

Anthracite continues in strong demand, due to weather. Mines slow to work up to normal production. Stove and nut scarce; pea and egg free. Tonnages in yards show signs of gaining. Dealers advertise for trade. Size change under discussion. Retailers maintain prices. Pea still troublesome to shippers. Buckwheat only active steam size. Rice and barley quiet. Bituminous trade marking time. Small tonnage for spot business. Consumers demand the best. Government prices still in effect.

Anthracite—There has been some moderation in the weather during the past week, although at no time did the thermometer go more than a few degrees above the freezing point. With conditions such as these it is plainly evident that coal is being used and if anything there has been a slightly stronger demand on the dealers for supplies. There is no doubt that many buyers are endeavoring to replenish their supplies which have already been heavily depleted. Naturally the dealers are anxious to take care of all business that offers and they in turn are urging the shippers for more tonnage.

Most of the operators report great difficulty in getting their mines back to normal production, as the men at the mines seem inclined to prolong the holiday season. It was not until well past the middle of the week that shippers began to report anything like fair shipments of stove and nut and for a while quite a few dealers were entirely out of these sizes.

The public continues to show its preference for stove and nut and the retailers still report their inability to shift to the other sizes, pea and egg, which are now in plentiful supply, especially the former. Of course a fair volume of pea is going out of the yards all the time and it is expected that it will pick up right along through this month and February, as it always has, but it is far from the demand for this size that used to show itself at this time of the year. There is only a moderate demand for egg coal and it was thought that this size would be much more sought after at this time of the year, although ordinarily the call for it is well taken care of late in the fall. The dealers had expected that with the installation of so many hot-air heaters of a new type that they would have a run on egg, but to date this has not materialized.

Taking the situation in its entirety it is believed that so far as actual coal in the yards at this time is concerned the dealers have a trifle more coal on hand of all sizes now than at any time for several months. As stated above many still are short on stove and nut, but there are a number of favored dealers who have never actually been out of these sizes and are actually catching up and laying by stocks. That this is true is shown by the increasing number of retailers who are advertising in the daily papers. Most of them have not done any advertising since last spring and now they are coming out asking for business on all sizes. One large retailer even went so far as to advise customers to stock up coal now and avoid a possible strike on the 1st of next April, and in

addition hinted that there might be only two sizes at this time and now was a good opportunity to get such sizes as might be desired.

The change of size proposition continues to be a live topic of discussion among the dealers. Inasmuch as the retailers are endeavoring to have the different coal associations in this territory to take favorable action, it begins to look as though a big majority of them will finally be won to the proposition. It is believed that the operators will insist upon being shown that the retailers want the change, and if this can be done it is thought it will become effective April 1, although the wage demands of the miners which are due at that time might upset the whole proposition.

In the way of wholesale prices in the trade, the big companies of course adhere to their circular prices, while the independent shippers are still in most instances collecting a premium of 75c above the circular, including pea coal. Many of them, though, are having considerable difficulty in maintaining the full price on this latter size, and we have heard of instances where they are not applying the full price to some of their trade. Some of the smaller operators have their salesmen out in an endeavor to move the surplus of pea, but they are meeting with little success and the coal is generally moved by sending it to their old trade, probably with an understanding as to the price.

With so much pea coal on hand, and with something of an accumulation of egg, it was thought likely that the chronic retail price cutters might be inclined to shade their figures, at least on the smaller size. Fortunately up to this time most of them seem to have held firm and the retail prices throughout the city are pretty well based on the following schedule: egg \$11.25, stove \$11.90, nut \$11.90 and pea \$9.55. Most dealers continue to make an extra charge of 40c a ton when coal has to be carried. In some of the outlying sections the above retail prices are from 10 to 15c. lower, but this difference has been in effect for years and has no bearing on the price situation in general.

The steam trade continues in fair condition, but it must be said that the only real demand is for buckwheat. Due to the collieries slowly resuming their normal production the big companies have been able to dispose of all their buckwheat without any difficulty and it is really believed that this phase of the steam trade will pick up for some weeks to come, even with increased production, as the industries hereabouts are working actively and the tendency is to increase consumption. Rice and barley are still quite draggy, with enough and more of each size to go around. The independents are at times bothered considerably to move all of their output of these sizes, but it is not believed that any of them have been compelled to move the coal at a reduction.

Bituminous—The soft coal trade is moving along in what might be called a routine of expectancy. There can be no doubt that the trade is being held back until the President's investigation committee can make a report. In the meantime there is a moderate amount of fuel being offered on the spot market at the fixed Government prices. There is some little demand from the consumer, but mostly only for high grade fuels and the buyer is somewhat wary of spot offerings and he realizes that the bulk of free coal is of ordinary grade, although allowed to take the full prices.

The prices for Central Pa. coal are \$2.95, Fairmont mine-run three-quarter, \$2.75; mine-run, \$2.50; slack, \$2.25; Pittsburgh three-quarter, \$2.60; mine-run, \$2.35; slack, \$2.10. A commission of 15c. a ton should be added to these figures for coal sold by commission houses. Blacksmith coal approximates about \$3.50. There is some little coke demand at prices of \$8.25 for foundry, and \$7.25 for furnace sizes. Many shippers during this period are spending their time on figuring on the possibility of contract business in the spring and looking out for desirable places to put their tonnage allotted for this purpose.

BALTIMORE

The market is in a tight place here as a result of government policy, but easier days are expected. Only export and contract coal to be had, and some big local concerns are running short. Movements improving, however. Hard coal situation becoming more active.

Bituminous—The local soft coal market is very tight, and many of the coal men blame it largely on the government policy since the ending of the strike. Briefly told, this is the situation in this section: The end of the strike found the port piers swept clear of coal and the Government

having confiscated several thousand cars from the pool and running on contract. This coal has never been made up, and many with large credits in the pool are unable to secure any coal because the government has not replaced the coal taken, while others who owe the pool can not get coal to pay the debt.

The loading on the division, normally around 3,500 cars per day, recently dropped to about 1,800 daily average, and while at present it is increasing and has reached about 2,500 cars a day, the entire movement, based practically on the car supply situation, is running only between 60 and 70 per cent. About two weeks ago the government announced that exports could be resumed on permits—one permit to dump into a ship actually in hand, and another permit for coal to send to that ship. The producers are allowed the usual increase of \$1.35 a ton over the government price for domestic coal on this fuel. Next it was announced that coal shipped after Nov. 13 on contracts made prior to Oct. 30 could be billed at the contract prices, even though the majority ran from a dollar up over the Government price for spot fuels.

The result is that in the light movement from mines to tide the producers are naturally shipping the coal on the contracts made above government prices or on export at the advanced rate. Because the tide was not filled with a reserve, the highest number of cars at the piers here these days being around 500, or contract delivery. There is no coal here for the open market and not much on the lower priced contracts.

A number of local industries are thus running desperately short, and there has been some talk by some of attempting to hold responsible financially, the government departments which seized coal sent to the local firms on contract and which have failed to make good the credits here, despite the fact that the government is allowing coal to be sent to foreign lands. Unless quick relief comes it is not at all improbable that an appeal to stop exports again until a local reserve is accumulated to prevent real trouble will be the order of the day.

That does not mean that much export coal is going out, as the red tape of permits delays things, but it does mean that much coal is being held at other points for that business as soon as loaded cars can be moved to tide. Since the export ban was lifted only 5 ships have loaded, all with modest cargoes, the highest being 6,857 tons. Some of these ships have been alongside the piers 3 and 4 days before enough coal could be put aboard to give clearance.

Anthracite—The anthracite situation is becoming more active. Midseason calls are now heard, especially following the recent spell of real cold weather. There is no talk in the local trade of retail price advances, despite similar moves in other places and despite the fact that high premium rates are being paid on much of the coal coming in. The receipts here are light, but are keeping pace with demand.

Lake Markets

PITTSBURGH

Car supplies in the Pittsburgh district are increasing. Production is now running at about 75 per cent of capacity. Domestic supplies are amply sufficient. Steel mills are only moderately well supplied with coal, while byproduct coking plants connected with steel mills are in many cases quite short of coal.

R. W. Gardiner, Commissioner of the Pittsburgh Coal Producers' Association, has prepared a statement saying in substance that the Pittsburgh district has a capacity of 4,000,000 tons a month, and produced about 3,500,000 tons in October, with no production to speak of in November, while December production totaled about 1,675,000 tons, there being practically no production in the forepart of the month. Mr. Gardiner states further that in the last two weeks of December the mines were able to produce 200,000 tons more coal than the railroads were able to handle.

The coal market continues very quiet, with only occasional lots of free coal available in the open market. Full Government prices are obtained: Slack, \$2.10; mine-run, \$2.35; screened, \$2.60, per net ton at mine, Pittsburgh district, with a 15c brokerage allowance in some instances, paid by the consumer.

BUFFALO

News very scarce. Shippers not satisfied with the market. Prices out of line. Min-

ers doing fairly well. Anthracite still plenty. More than local trade needs.

Bituminous—Shippers are not willing to predict the future of the trade and they are not pleased with the present situation. The Government price has again set Allegheny Valley prices above Pittsburgh. The result is that the lower priced coal is hard to get. Operators claim that it all goes on contract when asked for it, which means that they do not mean to accept the regulation price if they can help it.

This does not make it easy for the Allegheny Valley operators either, for they sometimes find it hard to sell their output. The demand is not brisk. Shippers have to get out and hunt for their customers, and they do not always find them. Neither this state nor Canada really wants coal at present prices. The idea is that prices are coming down, which is the bane of the trade. At the same time the shippers are positive that prices will not only stay up, but they say that coal is going into consumption much faster than it is bought and that alone will make the demand very strong again just as soon as the stocks have run down far enough to make the consumer anxious.

Business improves greatly. Buffalo has a big new horse-shoe nail factory on its list, having come after cheap power and other manufacturing concerns are doing well. Coal will have to be plenty to keep pace with the industries, even if there is Niagara electric power to be had. That alone will never cut down the use of coal to any great extent, though it may cut out the increase somewhat. Only let the labor unrest subside.

Everybody reports car shortage in sight, but it is not very apparent yet. It is the light demand that is most apparent. While that will take care of itself in time it would be better to distribute the buying more evenly. Both shippers and consumers would be better satisfied. Bituminous prices cannot be sized up easily. They are pretty unsteady and there are reports of premiums paid, but as a rule the Government figures prevail.

Anthracite—"They will be stocking anthracite before long if this mild weather lasts," was the remark of a shipper in that branch of the trade this week. Nobody, not even the operators themselves, had any idea of the way this coal was going to loom up after the closing of the lakes. The retailers do not keep up with the supply, and of course the consumers are making no complaint. They are no longer asking for more than they need, and that alone is a big factor in the reckoning. If they had always been content with a moderate supply the trade would have been in a much better condition.

There are still outlying points to cover by rail, but Canada is not complaining much now and if the prices there had not been raised materially by the discount on Canadian money the trade would be in a better condition than it has been in a long time. It looks as if the money problem would be a vexed one for sometime, for England has no longer the gold to pay in at New York and meet the Canadian debts.

The special independent price of anthracite has about disappeared, for no consumer is going to pay from \$1 to \$3 more than the standard companies ask, when their coal is to be had at regulation prices.

CINCINNATI

The coal situation has changed little during the past week. The embargo placed on eastbound shipments on the Chesapeake & Ohio, R.R., will greatly help the situation here and practically the entire Middle West. Some improvement has been noticed in the re-routing of the cars at the mines, but nevertheless there still remains a car shortage.

Receipts by river during the week were about normal. This was largely due to the high stage of the river which enabled the barges to come down stream without any difficulty. Industrial consumers complained of their coal piles disappearing with meager prospects of coal coming in shortly. The output of the West Virginia and eastern Kentucky mines during the last six days has been below normal.

The tonnage of the Kanawha region increased somewhat over the previous week when only half of the usual tonnage was produced. Government prices still prevail on the local market. Retail dealers were interested last week in a report received from Chicago that retailers there have announced an increase of 60c. a ton on coal effective this week. This is taken for granted by local retailers that Chicago is not as well off as Cincinnati as to coal.

Since the strike was called off local retailers have been able to lay in enough supplies to take care of their regular bus-

iness, with little free coal to offer. However, there is a coal shortage right now in Cincinnati and many other cities in this locality, and it probably will continue for some time. Coal men do not expect any serious disruption of business, nor a return of conditions such as existed toward the end of the coal strike.

Industrial concerns may find it hard to get all the coal they need and in fact some are finding it hard right now. Wholesale and retail dealers became indignant over a published report that they are making profits. This is not true. If they were forced to go out in the open market to buy coal now for the purpose of selling it at present prices they would lose money.

During the past week there has been a heavy demand for steam coal, which was satisfactorily met. No further improvement is looked for until production at the mines reaches a maximum and car shortage is eliminated.

Cincinnati has been fortunate as far as the supply of coal is concerned, having not seriously felt the shortage as have other cities of its size. This is because it is located near the great fields of West Virginia and eastern Kentucky.

Operators say that the embargo at Detroit even prevents shipments with a permit. The situation here is expected to improve somewhat since the Chesapeake & Ohio R.R. placed an embargo on eastbound shipments. The embargo was issued because the eastern yards are congested with coal for export trade.

LOUISVILLE

Car shortage blocking production with many mines down for days at a time. Good demand for all coal. Retailers want larger margins.

More miners worked during the holiday period than had been expected, due to having been off for so many weeks, and production as a whole was surprisingly good. However, transportation facilities are bad, due to the early January blizzards, and empties are returning to the mines so slowly that operations are almost at a standstill. Mines of the Illinois Central lines in western Kentucky have been getting fair supplies while mines on all sections of the Louisville & Nashville in Kentucky report that they are getting practically no coal. One company operating 9 mines reported that 4 mines were down for 5 days running. Another mine with a ten-car per week capacity has secured but one car during the past week. Mines that get two full days in at the present time are fortunate. Labor is ready and willing to work, but the operators are tied hand and foot.

C. D. Boyd, coal traffic manager for the Hazari, Harlan and Southern Appalachian Association, has gone to Atlanta, in an effort to get some relief from railroad officials there, in order to give Kentucky mines a better car supply.

Shipments by river are also being curtailed, due to the fact that there is a good deal of running ice in the Ohio River at the present time, and coal boats and barges are not safe.

Demand is good for all grades of coal. Steam is selling freely as industrial concerns are stocking, and cement, brick and other plants which are generally down at this season are running full to make up for time lost during the recent fuel regulations and shortage.

Domestic coal has been selling freely as a result of cold weather and snow, retailers reporting the most active demand since stocking dropped off in the fall. Indications are that there will be a good retail demand for the balance of the winter.

Louisville retailers upon hearing that Chicago retailers had been given a 60c per ton advance began figuring ways and means of getting a local advance, claiming that the margins allowed in 1918 are not sufficient for profitable operation in 1920. Retailers at present are operating on a \$2.20 margin on domestic sizes; and \$1.70 on steam. They want a \$2.50 or \$2.75 margin on domestic, and a \$2 margin on steam. A meeting will be held shortly to take up this matter.

Some of the large mining companies with local sales departments handling domestic and steam business are being forced to buy outside coal wherever they can get it to supply demand, due to the fact that their own mines are not getting cars sufficient to meet requirements.

Jobbers report much better business, with orders coming freely, and it being merely a question of being able to secure coal from such mines as haven't tied up with selling agents. Retailers are now advancing prices on steam contracts about 25c a ton to take care of the fourteen per cent increase allowed the miners, and passed on to the retailers. In many cases retail contracts did not carry a clause covering wage increases.

BIRMINGHAM

Sharp increase in demand for steam coal from all quarters. Domestic practically cleaned up on local retail yards as a result of cold weather conditions, receipts being much lighter than requirements of the wholesale trade. Production off following the holidays, mine workers being slow to return to the mines.

There has been a perceptible increase in the volume of the steam trade in the past week and there is a strong demand, especially for the better grades. Inquiry being sufficient, however, to care for the full output of the mines at this time. The stocks of industrial plants, railroads, and other public utilities ran low during the holidays, and consumers holding contracts did not receive full shipments, and there is inquiry in the spot market for additional tonnage by these interests. This is augmented by the needs of the regular spot buyers. Because of the high cost of production at some operations, because of the increase in wages and restrictions of government selling prices, such mines are badly handicapped in producing coal for the spot trade where they are unable to pass this additional cost on to the consumer, and until some relief is obtained in the adjustment of selling schedules the production from the district will suffer materially as a whole. Inquiry for expert coal is good, but at present there is none of this class of fuel available. Some bunker coal is moving to the ports of Mobile, Pensacola and New Orleans.

Domestic coal is scarce and the past few days of cold weather practically cleaned up the stocks on most of the retail yards. The demand for increased shipments from the mines is insistent, but receipts are not sufficient to enable retailers to supply the requirements of the trade and accumulate any stocks.

Production during the week ending Dec. 27, totaled 162,000 tons, or a decrease of 50 per cent under that of the previous week. The past week will show some improvement, as practically full crews returned to the mines this week. Equipment is sufficient to handle all the coal now being produced.

Coke

CONNELLSVILLE

Production increasing and not far from normal. Byproduct production still curtailed. Some prompt business done.

Coke production in the Connellsville and Lower Connellsville region has been steadily increasing since the poor week ended Dec. 27. This week's output promises to be approximately normal, but more than normal production is needed if all requirements are to be met. There are requirements of furnaces normally dependent upon byproduct operations that would buy Connellsville coke if it were to be secured, but there is more prospect of byproduct operations regaining their normal rate than there is of Connellsville production exceeding its normal.

For a time after Government price limits were imposed on Dec. 8, there were no offerings of coke in the open market, but in the past week offerings have appeared, in a limited way, and in some cases, particularly with foundry coke, operators have been willing to sell to middlemen at a trifle under the Government limit, so as to allow the middleman a margin by selling into consumption at the full price.

A great deal of furnace coke, however, is moving at the Government price inasmuch as a large amount of contract business, say 35 or 40 per cent of the total, was not done for this year as the unsettlement of the market came before contracts were concluded, and in most of the cases coke is being shipped as formerly, being billed at the Government price. Upon the removal of the price control the parties will probably negotiate contracts, but it is possible they will continue without a contract price and simply agree upon prices month by month.

The *Courier* reports production in the Connellsville and Lower Connellsville region in the week ended Jan. 3 at 237,730 tons, an increase of 31,880 tons.

The market remains quotable at Government limits, \$5 for furnace coke, and \$7 for selected 72-hr. foundry, per net ton at the arena.

BUFFALO

The situation does not change materially. Such amounts as the smelting trade needs the local shippers are selling on the basis of \$9.50 for 72-hr. Connellsville foundry, \$8.50 for 48-hr. furnace and

nominally \$7 for off-grades, though the last is not active now. Domestic sizes continue at \$8, with breeze very quiet at \$5. The summary of the iron-ore season by lake shows a receipt of 4,868,333 gross tons at Buffalo, the entire lower-lake receipts being 36,874,316 tons, with 9,998,475 tons to the upper lakes, including Detroit.

There is now on lower-lake docks 10,090,708 tons, of which Buffalo has 333,777. This amount is the largest in the history of the trade at this time of year, though the receipts for the season at lower-lake ports fell off 10,863,745 tons, as compared with 1918, due mostly to labor troubles.

Middle West

GENERAL REVIEW

The coal market continues strong and vigorous in the Middle West. In certain points in Iowa and the Northwest, the demand is even more than vigorous. Both manufacturers and dealers are beseeching operators and jobbers in Chicago to ship them coal, and to ship it quickly.

In Illinois and Indiana the situation is not quite so strenuous, although there is steady demand for any kind of good coal. Reports come in from all through the territory that the stocks of coal on hand are very low, and operators and distributors are predicting that there will be a good demand for fuel right straight through, until spring.

The railroads are now by far the most important factor in the coal situation. We frequently hear of coal which has been in transit from 30 to 60 days, which, under normal conditions is not in transit more than ten days to two weeks. Only some of this delay was caused by the coal strike. Anxious consignees have found it almost impossible to get any information from the railroad authorities as to where their transit coal is located. The car supply at the Illinois and Indiana mines has been exceedingly poor, during the past week, and the possibilities are not very great for better services from the Railroad Administration.

We understand from very good authority that there is no Fuel Administration left in Washington, as all of the experts heretofore employed by this important branch of the Government, have been forced to seek work elsewhere, this because the Fuel Administration is out of funds with which to continue operations. The above statement may or may not be accurate, but we do know that many inquiries and telegrams sent to the Fuel Administration at Washington, have been returned.

Probably the Railroad Administration is tending to all of the duties of the Fuel Administration. A little thing like adding the duties and responsibilities of the Fuel Administration on to the Railroad Administration ought not to bother so able an individual as the present Director-General and his staff of efficient helpers. The Railroad Administration, nerved no doubt by its success in solving transportation and labor problems since the ending of the war, feels fully confident to assume control of such an unimportant basic industry as coal.

CHICAGO

A peculiar situation exists in Chicago. The domestic market has kept up strong, while steam coal from all of the better known fields in Illinois and Indiana are still very difficult to get.

It has been noticed that some operators in the less favored fields producing a medium and inferior grade of coal, have been offering their product in Chicago during the past week, but have been making very few sales. This is because the industries in the city were pretty well taken care of during the coal strike, and since the settlement of the strike have received very liberal shipments from their regular connections.

An unexpected development has taken place in the domestic market. During the latter part of 1918, and the early part of 1919, it was pretty generally conceded that eastern coal would never regain its old place in Chicago. It seems that our own local coals had earned a position which they were never going to lose. During the war no eastern coal was allowed to come into the West, and as a result the public had to buy Illinois and Indiana coals.

It was thought that these coals would be so satisfactory that the public would continue their use, but this seems to be erroneous, as high grade splint from West Virginia and Kentucky is now more in demand than ever before, while Pocahontas

and New River coals have entirely won back their old position of supremacy. Eastern shippers are looking forward to regaining all of their old business and valuable new business. It is said there will be several new offices in Chicago representing eastern operations, as soon as conditions get anywhere near back to normal.

MILWAUKEE

Coal market quiet, with prices unchanged. An advance in Illinois coal in prospect. Scarcity of cars bothers shippers.

The coal market continues quiet, with prices unchanged, despite the fact that stocks of soft coal are fast being dissipated. Hard coal is in good supply, however. There is a brisk movement of coal to the interior, but shippers are unable to get a proper supply of cars.

Illinois coal is beginning to show up on the tracks, and there is some speculation as to the probable price of the new product, because of the advance of 14 per cent in miners' wages. No bills have been received for the consignments received thus far and dealers say an advance is inevitable.

While many yards are well supplied with soft coal, others are running low and will have to order Western coal and pass the increased cost on to the consumer. The advance of 60c. per ton by Chicago dealers to meet higher cost of handling and delivery is naturally the subject of favorable comment in coal circles here, but thus far there is no indication that such a step will be taken in this city.

ST. LOUIS

Inability to move steam sizes causing trouble, together with a 50 per cent car shortage on some roads. Railroad service poor. A scarcity of domestic coal everywhere. Miners not inclined to work full time.

The local condition is one that is beginning to be like it was in former years; not enough of one kind and too much of the other. In the Mt. Olive and Standard fields there is a tonnage of screenings that cannot be absorbed, with the result that mines have been obliged to run on mine-run, and sell to railroads in order to keep going when they had cars.

The market on screenings in both of these fields has held up pretty well until the last day or two when in the Standard field they went down to \$1.95 in a few instances.

There is a serious shortage of domestic sizes in both of these fields and car shortage became severe the last week on the Illinois Central, Louisville & Nashville, Pennsylvania, and Mobile & Ohio, R.R., some of these roads being as short as 50 per cent. Of the equipment furnished much is hopper cars and the trade in this part of the country has an unusually hard time taking care of this equipment.

Locally in St. Louis there is an ample supply of coal, but in the country districts there is considerable anxiety and some places have been short of coal and will be for some time. Carthage, Mo., for instance, has had no domestic lump or egg coal to speak of and the trade there is obliged to use mine-run and screenings.

At many mines in the field the miners do not seem inclined to work full time, laying off with the slightest excuse.

The embargoes of the past week were eased up some in the last few days, especially on the Burlington, Wabash, Missouri Pacific and Missouri, Kansas & Texas R.R.

Transportation over all the roads, including the Terminal, has been bad on account of congested conditions. In the Carterville field the car shortage is beginning to be almost as bad as in the Standard district. Some of the mines are now averaging three to four days a week excepting where several roads supply cars.

All sizes in this field are in good demand, but very little of this coal is coming into St. Louis on account of the operators asking a price higher than that permitted by the Government and at a price which cannot be paid in Missouri, according to the Fuel Administration rulings applying to St. Louis and vicinity. The dealers have handed their case over to the United States District Attorney, who expects to prosecute the Franklin County operators.

There has been no change in retail prices. A little anthracite is moving in, but no smokeless. The supply of gas house and byproduct coke is good and in fairly good demand.

Business shows considerable improvement in the St. Louis district. The first severe snow of the winter started in on Jan. 6 and continued through the next day, holding up traffic and in other ways reducing the coal business to about one-half.